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# ON SOME POINTS CONNECTED WITH
# THE
# PATHOLOGY, DIAGNOSIS AND TREATMENT
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# FIBROUS TUMOURS
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# WOMB:

BEING THE
**Lettsomian Lectures**
ON
MIDWIFERY AND DISEASES OF WOMEN,

DELIVERED BEFORE
THE MEDICAL SOCIETY OF LONDON,
NOVEMBER AND DECEMBER, 1863.

BY
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LONDON:
PRINTED BY
T. RICHARDS, 37, GREAT QUEEN STREET.

MDCCCLXIV.

157. n. 28.

BIBLIOTHECA · BODLEIANA ·

TO

SIR CHARLES LOCOCK, BART., M.D., F.R.S.,
FIRST PHYSICIAN-ACCOUCHEUR TO THE QUEEN;

WHO, BY HIS
HIGH ACQUIREMENTS AND EMINENT SCIENTIFIC CHARACTER,
HAS OBTAINED
SO EXALTED A POSITION IN THE PROFESSION,

These Lectures,

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON,
OF WHICH HE WAS FORMERLY PRESIDENT,
ARE DEDICATED (BY PERMISSION)
IN TOKEN OF THE ADMIRATION AND RESPECT OF

THE AUTHOR.

# PREFACE.

It has been asked why, when called upon to deliver the Lettsomian Lectures on Midwifery and Diseases of Women and Children, I should have selected the subject of Fibrous Tumours of the Uterus—a subject not purely medical, and, in many of its phases, more adapted for lectures on surgery. This view I believe to be founded on a misconception of the nature of the subject. I had, at any rate, two good reasons for acting as I did.

In the first place, a general reason. Abdominal diseases have of late years been rather a favourite study. Not only have pure physicians, by careful inquiry into the pathological changes and varieties in form and position of the organs contained within the abdominal cavity, both brought to light much to facilitate the diagnosis, and laid the foundation upon which to build perhaps still more important discoveries; but obstetric physicians and surgeons have, by an amount of boldness warranted only by the better comprehension of these diseases and by the success which has attended the use of the knife in their hands, been able to establish upon something like a philosophical basis the rules to be observed in the treatment of these cases. The information thus elicited was, however, much scattered in various works and languages. Here was one reason, therefore, to justify an attempt, however imperfect, to collect and put together what, as a whole, might prove very instructive.

In the second place, a special reason. Although to mention the names of the workers in these departments might appear unwise, lest injustice should be done to some by an accidental omission, it might be stated, without fear of contradiction, that it is especially to the labours of those engaged in the *practice* of diseases of women and children that the advance made in the diagnosis and treatment of diseases of the *pelvic organs* is especially due. This might, indeed, have been pre-supposed. The acquaintance with normal pregnancy, and the accidents which attend this state; the practice of diagnosis between this condition and the diseases with which it may be confounded; the appreciation of those symptoms and maladies which result from its presence or follow on its termination—all these points would lead to the acquirement of a knowledge more likely to be found useful and suggestive in diseases of the pelvic organs generally, and fibrous tumours of the womb especially, than that kind of information to be acquired by the ordinary routine practice of pure surgery. Take, for instance, ovarian dropsy, or those diseases which affect the larger size and shape of the uterus, and other analogous affections. The very presence of these would lead to interference with functions more or less affected also in pregnancy, and with which the accoucheur is quite familiar. All information to be derived through vaginal examinations, and all operative interference through this passage, are only in the general course of his obstetrical duties. Even gastrotomy for uterine and ovarian dropsy bears the closest resemblance to a Cæsarean section. The sequelæ also of such operations have a strong similarity to some forms of puerperal fever, a disease which falls almost exclusively in the province of the accoucheur to treat. Take them all in all, the duties of an accoucheur are eminently surgical. Midwifery is surgery. But it is a special surgery, limited to the sexual organs and their annexes, and requiring eminently the study of midwifery, and of those diseases of the pelvic organs to which a woman is especially liable. It is a subject with which, for this very reason, a pure surgeon, unless he be also an obstetrician, need not be conversant, and a branch of surgery which he need not practise, and, indeed, might object to as scarcely legitimate. And such has been the conclusion come to by some eminent surgeons already.

These two reasons appeared to my mind to be sufficiently powerful to justify the course which I adopted. At any rate, they were those which influenced me in selecting fibrous tumours of the womb as the obstetrical subject for the following Lettsomian Lectures.

C. H. F. ROUTH.

52, Montague Square.

# LECTURE I.

## ON SOME POINTS CONNECTED WITH THE PATHOLOGY AND ETIOLOGY OF FIBROUS TUMOURS OF THE UTERUS.

Mr. President and Gentlemen,—I am well aware of the honour of addressing an assembly like the present, including as it does some of the most eminent members of our profession. But if it be an honour, as it undoubtedly is, to have been selected to deliver the Lettsomian Lectures, it involves also a responsibility. Not only have I to emulate the distinguished men who have lectured here before, and deserved well at your hands, but I also feel that I address a body of experienced practitioners—men of knowledge, whose judgment must necessarily be severe. All I can hope is, therefore, that, as I have worked much at the subject, and striven hard to merit your good opinion, I may be leniently listened to, and in offering you something worthy of your attention, not disappoint your expectations altogether.

The subject which I have selected for discussion is "Fibrous Tumours of the Uterus." It is one which has for many years attracted the attention of the profession in every country. Its literature is therefore very extensive; but it is also very widely scattered. I have thought, therefore, as not only do ancient and modern writers hold contradictory views, but as even in the present day authors are not agreed as to the pathology, means of diagnosis, and treatment of these growths, that a general *resumê* might prove interesting and not unprofitable. I propose to consider the subject under these three heads, devoting one lecture to each part of the subject; and I trust finally, from this analysis, to deduce certain practical conclusions, which I shall bring prominently before you. Your own future experience will enable you either to confirm my views, if they are founded on fact, or your better judgment to correct them if I have erred, to the advantage of those whom you treat, and who suffer from this disease.

STRUCTURE. What is a fibrous tumour? I should define it as a growth in which the fibro-cellular elements of tissue predominate. To the naked eye it appears to be made up of fibres arranged in bundles, sometimes interlacing, with more or less cellular and even adipose tissue between them, of a white yellowish colour, with tints here and there of light blue. This blue is due to veins or radicles of veins which run through the tissue, the tissue itself being non-vascular. In some instances there is less, in others more cellular tissue present; hence a division made by some into fibrous tumours, properly so called, and fibro-cellular tumours. Sometimes they contain a larger excess of uterine tissue in them; and this constitutes what some have appropriately designated the fleshy tubercle, or, later writers, muscular tumours. All this, at first sight, seems simple enough; not so, however, when we look at the subject more scientifically. Here I must confess that my reading on the subject of fibrous tumours, in regard to their classification and division by different authors, has not been very satisfactory. No one, I think, could fail to perceive that there is much *verbal* confusion, the same word being used by various authors to designate very different varieties. I must therefore content myself with a few general remarks on fibrous tumours as a whole, and then proceed to their classification into varieties, following chiefly in this respect the French school.

When we look closely into a fibrous tumour, it appears to consist of a number of fibres, some of which are parallel, others interlace in every direction, the colouring varying from a light yellow to a light blue. These fibres, which are fibrous tissue, are very resistent, elastic, and closely knit together. Sometimes, but more rarely, they appear to assume the circular direction, and to be arranged concentrically around the vessels which pass through them, as figured in the diagram.

A fibrous tumour is generally surrounded by a *capsule*, which takes its origin from the uterus, and which is sometimes very closely adherent to the tumour, at other times so little so, that the tumour may be easily separated from it, or *enucleated.* This enclosing membrane is itself non-vascular, but serves as a medium for the transmission of the vessels upon which its growth doubtless depends. The veins on the attached uterine surface are much enlarged, this enlargement having a distinct relation to the size of the tumour. Arrived near the tumour, they subdivide into a *rete vasculosum,* which nourishes the growth precisely in the same manner as in the case of cartilages and other non-vascular tissues. This *rete* does not, so to say, permeate the tumour. The few large vessels which are exclusively venous, and which sometimes pass through it, end in the *rete* at the opposed side, and do not belong to the substance of the tumour, resembling in this respect the vessels which permeate fat. Arteries, nerves, and lymphatics have never been discovered in fibrous tumours.

When fibrous tumours are cut through, they either exude no juice, or if so, one which floats upon the water and does not mix with it as encephaloid matter does. Dr. A. Clark, in a communication he kindly favoured me with at my request, has examined especially this juice. He writes—" I have on several occasions examined the *juice* of succulent fibrous tumours. I can say of it chemically no more than that I have found it always albuminous. Microscopically it has varied, but common to all are the following elements :—

" 1. Coagulated and variously altered blood-discs, isolated and in heaps.

"2. Corpuscular forms resembling the white cells of the blood.

"3. Moleculo-granular matter and fat.

"The soft, semi-lardaceous, imperfectly defined fibrous and muscular tumours exhibit, in addition, the following structural forms in the juice:—

"4. Oval flattened corpuscles containing a few granules.

"5. Fusiform nucleated cells.

"6. Nucleated fibres or fibre-cells resembling the elements of organic muscular fibre."

The microscopical characters of the *substance* of fibrous tumours themselves are as follows:—1. Fibro-plastic elements united together by cellular tissue; 2. Nucleated fibres, striated and muscular in character; 3. A vast number of granular bodies.

The fibro-plastic elements are very closely packed, sometimes straight and sometimes waved. The muscular tissue is best seen after boiling or treating with acetic acid, when the characteristic nuclei become evident. These last fibres exist in vast numbers, considerably more abundant than in the ordinary unimpregnated uterus, but less so than in the pregnant organ. Indeed, according to Robin, they constitute at least from one-fourth to one-half the entire morbid mass. This circumstance it was that led Vogel to assert that fibrous tumours were, after all, a mere hypertrophy of the muscular tissue in the uterus.

"The *granular bodies* consist of an amorphous mass, very tenacious, semi-solid, keeping the fibres firmly adherent one to another, so as in fact to mask them.

This element is most important in regard to the part it plays in the harder tumours, and is especially abundant in those examples where the tumours have assumed a somewhat semi-transparent aspect" (Guyon).

VARIETIES. As to *classification*, I shall venture to speak of fibrous tumours of the uterus as of three classes: 1. *Fibromas*, which include *hysteromas;* 2. *Fibroids*, including the *recurrent;* 3. Malignant, as occurring both among *fibromas* and *fibroids.*

1. *Fibromas* are homologous tumours developed in a specific blastema resembling permanent fibrous tissue; differing, however, from it in this respect, that they have the power of independent growth, and of enlarging and developing indefinitely. On examination by the naked eye, we can make out two varieties: one, homogeneous-looking when cut through, shining, with no appearance of fibres, which, however, are soon developed by maceration in alcohol; another presenting distinctly the appearance of opaque fibres, sometimes white, grey, or yellow, and crossed in various directions. (Costello.)

As I am speaking, however, of fibrous tumours as they are found in the uterus only, I pass on to speak of the most common variety found in the uterus, namely, *hysteroma.*

*Hysteromas*, so called from their resemblance to uterine tissue, and their frequent presence as pathological results in that organ, contain, in addition to the fibrous elements of fibrous tissue, distinct fibro-cellules, *alias* the fibres of Kölliker; in other words, the muscular tissue of organic life. These hysteromas constitute the *fibroids* of Lebert, and differ from *fibromas* in their benignity, and in never ulcerating spontaneously.

These muscular organic fibres are distinguished by M. Lebert from *fibro-plastic bodies* (to which I shall presently refer) by a certain number of characters. The nuclei are narrower and more elongated. They have only one nucleolus: some are bent upon themselves. The fusiform bodies themselves are longer and thinner, as if unwoven. These bodies often exist in very large quantities in fibrous tumours, and sometimes it has been clearly made out that these are pedunculated, and directly continuous with the uterine tissue. In other cases they are isolated; but M. Lebert is still convinced that they proceed from the muscular fibres of the uterus, and partake of their character. These productions are included by him under the name of *homologous* growths. Just as an *exostosis* borrows from the neighbouring bone its general characters, or a cyst contains epithelium like its neighbouring cavity, so these fibrous tumours borrow muscular fibres from the contiguous uterus. The uterus here only follows the general law, that every organ exercises a sort of especial attraction on the nutritive elements which maintain it. Any deviation from health may determine an analogous production in its neighbourhood (*Bullet. de la Soc. Anat.*, p. 324, vol. ii).

It was the frequent presence of these bodies that led Vogel to assert that an uterine fibrous tumour was always a hypertrophy of the organ, a fact referred to long since by Dr. Oldham. The later inquiries of Dr. Bristowe, well known to most of you as an accurate observer, have fully confirmed this view, more especially in relation to the pregnant state. That gentleman examined two specimens of fibrous tumour in pregnant uteri. The first had during life been supposed to be an exostosis, which belief led to the performance of the Cæsarean section and the death of the patient. The fibrous tumours after death were here found to be solely connected with the upper two-thirds of the posterior wall of the uterus, and formed an irregular, lobulated, pedunculated mass of about the size of an orange. On section, it was found that the muscular tissue of the uterus enveloped some of the tumours, but in others extended merely for a short distance at their base. The tumours presented the ordinary characters of fibrous tumours, only they were denser, somewhat fleshy in appearance, and constituted of fibres, curving and twisting in all directions with the utmost complexity.

The microscopic examination of the tumours was conducted with great care.

"Portions of different tumours (taking care not to mistake any of the muscular tissue enveloping the tumours themselves) were submitted to examination, and, contrary to anticipation, in all instances, without exception, were found to present precisely the same characters as the muscular tissue of the uterus itself. They were so similar, indeed, that it was quite impossible to say of any specimen observed under the microscope, whether it was taken from the normal or abnormal structure. The tumours consisted of fusiform, pellucid, fasciculated muscular fibres, identical in size, shape, general appearance, and arrangement with those of the uterine parietes. There did not appear to be more fibrous tissue in these than in the uterus, although the fibrous tumours felt more dense."

Dr. Bristowe also examined another specimen of a fibrous tumour. This patient died four days after delivery, and the tumour was found, as in the latter case, to be made of muscular tissue. The fibres only were a little corrugated, as the tumour had for several years been kept in Goadby's solution (*Path. Trans.*, vol.iv). And that such tumours are muscular, appears to be now the opinion generally held by French and German pathologists, even by Lebert. That learned pathologist has now confessed that, although at the first he hesitated to admit the identity of fibrous tumours of the uterus with the uterus itself, believing that the fusiform bodies met in them were of a fibro-plastic nature, a more attentive examination has not allowed him to remain any longer in ignorance of their muscular structure, and general resemblance to the uterine organ.

2. *Fibroids* are heterologous growths, which may be described as originating from an abnormal or pathological blastema, and they are of two kinds—the fibro-plastic and fibro-nucleated, each variety

being a permanent pathological state, resembling one of the transient forms of fibrous tissue.

*a.* One way in which fibrous tissue grows is—1. A blastema appears; 2. In this are formed a number of nuclei: these become cells with a single nucleolus. The cells elongate when split at the ends, and finally fibres are found. Lastly, the nucleoli disappear. The cells during elongation come to be spindle-shaped. Now the *fibro-plastic tumour* of Lebert is a tumour made up of these bodies, the nuclei being called *fibro-plastic nuclei,* the spindle-shaped cells *fusiform bodies,* and the fibres *fibro-plastic fibres.* In a fibrillary tumour these several bodies exist in vast numbers. The cells are perhaps more rounded than in ordinary fibrous tissue: the fibres sometimes exist in very large numbers, so that the tumour may be said to be almost entirely made up of them. The nuclei, however, never entirely disappear.

*b.* The *fibro-nucleated* fibroid is a permanent condition of the second mode of growth observed in fibrous tissue. In this tissue the fibres may be formed directly from the blastema, without the intermediate agency of cells, *i. e.,* directly from the blastema; so that we have an appearance of cells and fibres quite distinct from one another. There may sometimes be very few fibres, so that the tumour may be said to be made up almost entirely of cells. Commonly, however, the fibres are present. Fibro-nucleated tumours are generally more malignant, and not necessarily encysted or circumscribed.

Intermediate between these two kinds of fibroids we may have very numerous differences, so that it may be difficult to say to which particular variety a given tumour belongs, although the broad characters of a fibroid exist. To some such modification the recurrent fibroid may be referred, which is occasionally found in the uterus, in fibrous polypi, and in pelvian bodies. From the researches of Paget, which have been confirmed by subsequent writers, these tumours resemble the common fibrous tumours which are whitest, most homogeneous, least fasciculated and glistening. Microscopically, the cells are more elongated, caudate, *oat*-shaped, many with long and subdivided terminal ends. Nuclei and grumous and granular matter, such as might arise from disintegrated cells, are also present. The fibres are very few and far between.

3. *Malignant fibroids* are said by Paget to resemble exactly, in all particulars, the ordinary fibrous tumours of the uterus with undulating white bands. The whole substance of the tumour has the same characters, microscopical and general, as these, although repeatedly examined, *i. e.*, nothing but the compact well-formed fibrous tissue with imbedded elongated nuclei. On boiling, gelatine is freely yielded.

The association of cancer with fibrous tumours has been denied. The later pathological records, however, seem to leave no doubt as to their co-existence. Mr. Hilton exhibited to the Pathological Society (*Trans.*, xii, 219) a tumour of a cancerous nature, probably following a recurrent fibroid. M. Bouvier

(*Annales de Chirurgie*, iv, 21) gives a case of similar nature, quoting others from Cruveilhier and Dumas. A similar case is given in the *Bulletin de la Soc. Anat.* (for April 1861, case 7), by M. Gillet, of general cancer in the abdominal organs with fibrous bodies *in utero* undergoing cancerous transformation. In a case to which I shall refer in the sequel, in the same tumour there were portions cancerous and portions fibrous. To my mind, there can be no doubt that these two diseases do, not uncommonly, exist in the same tumour; and if malignant be understood to mean a tumour, which may recur, and when cut or injured, may leave an ulcerated surface which will not heal, there can be no doubt that this state is not uncommon in fibroids.

I cannot, however, stop here to discuss these points, a treatise on fibrous tumours being no part of my intention. I can only glance at a few points, which in the sequel may be found useful to illustrate the practical points to which I wish particularly to call your attention. Whether we have to do with a true fibroid or fibroma with superimposed muscular tissue, these new growths in one important respect differ from uterus or muscle. If a fibrous tumour be wounded, so far as I am aware, it *never* heals by the first intention; the wound is followed by suppuration, generally by gangrene. In a few exceptional cases the wounds set up an irritation in the parts which leads to absorption of the tumour. Years ago, Atlee showed that fibrous tumours had *very little* vitality in them, less vitality, indeed, than most adventitious growths. The knowledge of this fact is most important, as I shall hope to show in the sequel. For, while advantage has been taken of it to perform certain kinds of operations upon fibrous tumours, as their enucleation, it has been completely overlooked in their extirpation of gastrotomy, and has been often, I believe, a cause of death.

The *position* which fibrous tumours occupy, in relation to the uterus, has led to their subdivision into three classes, each of which has peculiar symptoms of its own. 1. *Extra-uterine* or *surface tumours, i.e.*, where they are situated just beneath the peritoneum. 2. *Intra-uterine* or *cavity tumours*, where they are within the cavity of the uterus. 3. *Intra-mural* or *parietal tumours*, where they are imbedded in the walls of the organ. The tumour-points may be intermixed with much uterine tissue interposed here and there; of these, some have made this another variety, and called it *interstitial.* It is only, however, a modification of the parietal. In the first and last varieties the point of connexion may be more or less constricted and lengthened out, constituting a pedicle. In this case the tumours are called *pedunculated;* and, when the tumour is within the cavity of the organ, by common consent the name of *polypus* has been applied to it.

The *size* to which some fibrous tumours will grow is enormous. Commonly they weigh from 3 to 4 lbs., frequently 7 to 8 lbs. Krüll met with one which weighed 36 lbs. Gaultier de Claubry with one which weighed 39 lbs. Kraumer met with a surface pedunculated tumour 46 inches in circumference, and which weighed 40 lbs. Dr. Graily Hewitt met with one which weighed 42 lbs. Waller mentions one which weighed 74 lbs. The largest tumours, as a rule, are the pedunculated.

Extra-uterine fibrous tumours sometimes have very small and weak pedicles, and these occasionally give way. Then they generally continue to float within the cavity of the abdomen, and are there nourished in a very analogous manner as are the loose bodies in articulations Sometimes, however, they become again attached to some portion in the vicinity of the uterus, bony or otherwise, and constitute the "*tumeurs pelviennes*" of Huguier, or the "*tumeurs fibreuses de la fosse iliaque*" of Nélaton, not usually noticed in classical works. A very full account of these is given by Huguier and Nélaton (*Gaz. des Hôpitaux*, 1860, 411, and 1862, 77). The former was the first to call attention to them in 1860. They may be *intra-pelvic* or *extra-pelvic.* They are generally situated between the fascia transversalis and the peritoneum. Huguier's first case was attached to the sacro-iliac synchondrosis; two others were attached to the left anterior superior spinous process; another to the fourth false rib and left crista ilii. A similar one was seen by Verneuil also attached to the left anterior superior spinous process. The two cases described by Nélaton were in the right iliac fossa, one attached to the crista. These tumours are never found in men, a fact which shows their origin from the uterus; and, curiously enough, they have always been found in women who have borne children. Their size varies from that of a nut to that of an apple; and of this size they have been met by Depaul in the posterior cul-de-sac, so as to interfere with labour. In their structure they exactly resemble the uterine fibrous tumour—another reason, as Barth emphatically asserts, which proves that they originate from the uterus *(Bull. de la Soc. Anat.*, vol. xix, 13). In one case recorded by Gosselin, and in another by Chassaignac, they were recurrent. In Chassaignac's case, where the écraseur was used, followed by the red-hot iron, the tumour recurred in fifteen days. A second operation, followed by the Vienna paste, proved more successful. These tumours are hard, not adherent to the external skin, with a certain degree of mobility, limited only by the pedicle, smooth on their surface. They are often the seat of pain locally, of a lancinating character, like the points of needles. This pain is often aggravated by pressure. The only point of difference in feeling between these tumours and the so-called displaced ovaries is, that although pain is produced by their pressure, it is not attended with sickness, as in displaced ovary. Their growth is usually very slow, occupying years in development. There is a very interesting case recorded by M. Demarquay *(Bull. de la Soc. Anat.*, xix, 13) of a *pelvian* fibroid, which weighed upwards of eight pounds, surrounded by large veins and made up of lobes; it was situated in the left iliac fossa, and partly ossified; another character common both to these bodies and to subperitoneal fibrous tumours of the uterus. No pedicle could be found. Barth, however, asserts that these pedicles are sometimes very minute, and may easily escape observation.

### *Changes undergone by Uterine Tumours.*

The *intrinsic changes* which these tumours undergo in the process of growth, are most important; not only because they are of moment in enabling us to judge of the character of the growths, but also because they are useful as indications to guide us in the treatment. These changes, of course, have no relation to the extrinsic changes in the symptoms produced by the growth of the tumours, and by their connexion with surrounding parts.

The intrinsic changes may be classified into three varieties.

I. A process of *softening*, which includes five kinds : *a.* Conversion of the body into a more fleshy mass—a sort of sarcomatous transformation ; *b.* Interstitial deposition of watery matter—œdema ; *c.* Conversion into a cyst containing liquid matter ; *d.* Suppuration ; *e.* Fatty degeneration.

II. A process of *hardening*, which depends on the chemical composition of the tumour, and may be peripheral or interstitial.

III. A process of *absorption*, under which a tumour disappears in part or altogether, and this without the assistance of medicine.

I. SOFTENING. *a.* The *sarcomatous state* has been usually regarded as the earliest stage of uterine fibrous tumours, from the time of Hunter and Bayle, during which period they were spoken of as "the fleshy tubercle". Guyon, however (an excellent authority on uterine fibrous tumours), implies that this softening is not so often an *early stage* as a *progressive stage* or decay; although he admits that it is occasionally also the incipient stage of fibrous tumour. Moreover, in the softening from decay, the feeling of softness is more marked. Such tumours are generally redder in colour and more full of vessels; and the uterine tissue, especially the muscular, is more marked.

*b.* Softening by *œdema* may come on suddenly; and then, according to Guyon, it is accompanied with great vascularity of the tumour. These cases, he believes, generally prove fatal. The disease is probably inflammatory, and closely resembling acute œdema of the scrotum. Luys gives an example where a capillary puncture was made, which gave issue to about a tumbler of albuminous fluid. Death resulted two days afterwards, but no peritonitis was observed at the *post mortem* examination. More frequently, however, œdematous softening is a chronic disease. The occasional and temporary growth of fibrous tumours is due to this cause. A tumour will sometimes, if coarsely handled, become larger and softer. This may, it is true, be due to engorgement; but in one case in which this occurred, where I made an exploratory puncture, nothing but serum came away. There was also an absence of inflammatory symptoms. Cruveilhier thinks that in some cases the œdema is dissociated into numerous small masses, which, being congregated together, come to constitute the greatest part of the fibrous tumour.

*c.* Softening by *cystic transformation* takes place in three ways.

1. *Irregular cavities,* without parietes properly so called, are formed. These are called by Cruveilhier *geodes,* and would probably correspond to the alveolar disease of the ovary. They resemble very closely the last variety of œdematous swelling before referred to, only they appear to be chiefly restricted to the intercellular spaces. The œdema becomes localised, and so constitutes large cavities between the fibroid masses.

2. *Pseudo-cysts* are formed; *i. e.*, the solid fibrous mass itself undergoes local softening or liquefaction. The softening is described by Costello (*Cyclopædia of Practical Surgery*) as beginning (in *fibromas*) in the centre of the tumour by one or more points. This softening is often associated with some degree of transparency that gives to the structure a gelatinous aspect. As it advances, it so entirely puts on the appearance of jelly, that tumours in this state have been designated *fibro-colloids.* But there always remains enough of the external layer to set one right as to the nature of the tumour. Exceptionally, but rarely, they are found in an *hæmatode* state.

3. *True cysts,* or cavities lined by epithelial membrane, as in cystoid disease of the ovary, may be

formed. Mr. Paget describes this change as one of cyst-formation, similar to what occurs in the breast; well defined cysts, lined with smooth membrane, being produced. Accordingly, we read of *fibro-cystic disease* of the uterus as an affection of not unusual occurrence. I believe, however, it is very rare. I learn from a communication made through my friend Dr. Greenhalgh, that Mr. Savory of St. Bartholomew's Hospital denies the existence of this disease in the uterus altogether; the so-called examples of it in the College of Surgeons being simply pseudo-cysts without lining membrane. Two cases are on record, in which gastrotomy was lately performed by Mr. Brown and Mr. Wells. In the first case, examined by Messrs. Nunn and Holmes, the tumour was stated to be multilocular, and the cysts lined by membrane. It was found incorporated with the fundus uteri, but probably originated in the subperitoneal tissue in the neighbourhood of the uterus. This alone would show that it might have had an origin extraneous to the uterine tissue. The examination was carefully made before the tumour was declared to be fibro-cystic. In Mr. Wells's case, recorded in the same volume of the *Pathological Transactions* (xiv, 198), I learn from inquiry that he is not prepared to say that the fluid was contained in cysts with distinct lining epithelium. Most probably, therefore, it was contained in a pseudo-cyst. One case only appears more difficult of interpretation, and that is Dr. Wilson's case, published by Mr. Hewett, and quoted by Mr. Brown in his work. The disease here entirely originated from the right side of the fundus uteri by a pedicle, and the cysts were lined by a smooth delicate-looking membrane.

Pseudo-cysts may undergo other changes; viz., a salutary one, *i. e.*, where the occurrence of the change is only a prelude to the final absorption of the tumour; or the tumour enlarges, and attains such proportions as to become dangerous to life.

To trace these changes during life is by no means an easy or satisfactory task; because we cannot, in the ordinary run of cases, see them in the earlier stages, and our manipulation and external palpation of them is at most only to be made through the abdominal parietes. If the female be corpulent (a not unusual occurrence in cases of fibroid tumour), but little correct information is attainable. Again, a vaginal examination is often nugatory, if the tumour be in or about the fundus, the most common locality in which they are found. And all this is especially the case at early periods, or when the tumours are small.

But we can get very near the fact by collateral and strong presumptive evidence. Fibrous tumours undoubtedly do liquefy, as before stated, and soften in the centre, becoming changed in a pseudo-colloid mass. Usually, also, there is enough of the external fibrous matter to explain the nature of the tumour. But we as undoubtedly find pseudo-cysts about the uterus, occupying the position which fibrous tumours usually do. In almost all these cases, fibrous tumours of the ordinary kind are found in other parts of the organ. Some of these are in a transition state, containing fluids or semifluids in different states of viscosity.

In one remarkable example of fibroid disease given by Atlee, the truth of this proposition was proved by ocular demonstration. The case is important. It is the case mentioned in his interesting paper on the Surgical Treatment of Fibrous Tumours of the Uterus, in the *Transactions of the American Medical Association* (vol. v, p. 586).

The subject of this case was a young lady, who in July 1845 first noticed a tumour in the right side, midway between the ribs and pelvis. It was then as large as the fist, and oblong in shape; could be pushed over to the linea alba, depressed, and elevated; but, upon removal of pressure, returned to its usual position. Three months after this, she was seen by a medical man at Rhode Island, who described the tumour as decanter-shaped, with a narrow attachment to the right side of the uterus. He could play it about, and considered it an ovarian tumour. The succeeding winter (1845-6), it grew to twice the size which it had when Dr. Atlee first saw the patient, having enlarged gradually. The following spring (1846), it again gradually diminished to about one-third of its previous size, without treatment. The next summer, it again increased; and continued to do so until the latter part of the fall, when it again diminished without treatment. It remained stationary now until the next fall (1847), then increased gradually to a greater bulk than ever.

In the spring of 1848, she placed herself under the care of another medical man at New York, who used chiefly the electro-magnet, and croton oil with other purgatives. The flatulence diminished; the tumour but slightly.

In March 1847, she was under the care of a physician at Albany, who, believing it to be ovarian, tapped her, and came against a hard substance. Nothing flowed except a teaspoonful of blood. The trocar was introduced about two inches, and required considerable force to enter it. On putting a probe through the cannula, it came against a hard unyielding substance. The wound healed kindly.

It was in May 1847 that she came under Dr. Atlee's care. A tumour then occupied the left iliac, hypogastric, umbilical, and right hypochondriac regions, part of the right lumbar, and part of the right iliac regions. It was firm, slightly elastic; did not fluctuate; could be moved in all directions by using considerable force.

On examination *per vaginam et anum*, the patient on her side, it was found to occupy a large portion of the pelvis; the uterus could not be distinguished. It was believed, therefore, that the tumour was entirely uterine. The os could not be felt. The tumour could be played before the finger in the vagina, through the abdominal parietes. When placed on her *back*, the os could be detected by the index finger placed far back, but not the cervix. The sound penetrated only two inches and a half in the normal direction. But this was, however, accidental; for when, in the subsequent history of the case, she had recovered from gastrotomy, the sound passed a considerable distance. Very little motion could be made with the point of the sound, owing to the fixed position of the uterus at this point. The sound introduced into the bladder took a direction towards the right side.

Owing to the obscurity of the diagnosis and the wishes of the patient, it was thought advisable to try an exploratory incision—*i. e.*, to perform gastrotomy.

The abdomen was opened. Now, gentlemen, I wish you to note the appearance of the tumour. The diseased mass was turned entirely outside the abdominal cavity. It consisted of the uterus itself, which was either hypertrophied or else distended by a solid body within it. The peritoneal coat was elevated in several places from the surface of the tumour into cystiform bodies filled with a yellowish fluid. One of these, of about the size of a walnut, was at the top of the fundus; another, larger and more irregular, on its left side; and a couple of smaller ones lower down. The right ovary was enlarged to the size of a small orange; and the left was about three times its original bulk. Both ovaries were attached low down to the uterus.

In this state of things, nothing more could be done. The tumour was returned. The wound healed rapidly.

The subsequent history relates to an attempt afterwards made to relieve the patient in June 1849, two years afterwards, by enucleation *per vias naturales*. This proved unfortunate in result, for on Nov. 3rd she died. On *post mortem* examination, there were found to be adhesions of the cicatrix to the anterior part of the womb. Purulent serum was effused within the cavity of the abdomen, indicating *recent* inflammation. The tumour itself had very much the same appearance as when seen during gastrotomy. But *all* the cystiform bodies had disappeared, save one at the fundus, which was not altered in size, but was less fluid. The ovaries had not changed in appearance. The firmness of the tumour had much diminished; and, when it was cut open, large masses of it had degenerated into a brain-like substance.

Now, the inference I would draw from this case is twofold. In the large tumour, there was the process of softening in an earlier stage; a brain-like substance took the place of the fibrous tumour—the pseudo-colloid softening before referred to. The more solid cystiform body was, again, in a later stage than the large one, more liquid, and yet less fluid than the other cystiform bodies, which had undergone a process of more decided liquefaction, as seen during the operation of gastrotomy, before their final disappearance.

That these liquefied tumours have a decided relation to the more solid is manifest from the fact, that we scarcely ever meet with the former, unless the uterus contains at the same time some of the more solid fibrous bodies.

The very description of some of these tumours, although made from the naked-eye appearances, is characteristic of their fibrous character. In the case of a fibro-cystic tumour described by Dr. Jackson (*Boston Medical and Surgical Journal*, No. 64), each cyst was said to contain, 1, a pale amber-coloured fluid; 2, a gelatinous substance of the same colour, but varying in consistence; 3, semi-organised masses, varying in different cysts from the colour of cream to that of clots as they occur in the heart, and in size from that of an almond to that of the female hand.

The liquid contents of these fibrous tumours have, so far as I know, not been very accurately examined.

In one case reported by M. Louis Blin, where the tumour was evidently an hysteroma, occurring in the anterior wall, the tumour contained a very brown-coloured thick fluid, and floating within it were numerous gelatiniform flakes. The cyst itself was lined by an internal layer of this same gelatiniform matter, and a distinct muscular coating, analogous to uterine muscular fibres. M. Robin found, on microscopic examination, that both in the liquid and solid portions of the tumour there were muscular fibres of Kölliker disseminated through an amorphous mass. M. Broca, who also examined the same specimens subsequently with much attention, discovered, besides these muscular fibres of Kölliker, which were long, swollen in certain parts, and containing granular particles, some very short fusiform fibres, not granular, which he looked upon as a form of fibro-plastic element. In fine, it was clear that everywhere here were found the large fibro-cellules (of the Germans), which are evidently muscular fibres; and by their side, which had a very particular aspect, small elongated corpuscles of fibro-plastic tissue, with their central nucleus. (*Bull. Soc. Anat.*, vol. xxviii, pp. 54-56.)

In another case recorded by M. Rotureau (*Bull. Soc. Anat.*, vol. xvii, p. 139), in a pedunculated uterine tumour, the fluid contained a yellowish material, rather offensive, of the consistence of a soft bouillie, which flowed out of the cyst when cut open. This fluid contained, floating in it, half-fleshy reddish friable fibrous pieces, evidently the *débris* of the fibrous mass.

I am fortunate in having obtained some particulars of these fluid contents from such an excellent observer as Dr. A. Clark. That gentleman divides uterine cysts into four kinds: 1. Adventitious cysts, or hydatids; 2. Autogenous cysts; solutions of continuity in the uterus, independent of adventitious growths; 3. Glandular cysts; dilatations of the normal gland-follicles, common in the neck of the uterus, and not very uncommon in the body of it just below the mucous surface; 4. Cysts occurring in morbid growths as local solutions of continuity, and named from the growth which they exhibit, as fibro-cystic, collo-cystic, encephalo-cystic, and so on. I wish only to refer to the second variety—autogenous—corresponding to the alveolar before noticed, or *geodes*, and the fibro-cystic of the fourth variety, as bearing on my subject.

The fluid contents of the second variety, as Dr. A. Clark states, "have obviously arisen from extravasations of blood breaking up a portion of uterine substance. They have contained serum; variously corrugated and contorted blood-discs, isolated and in heaps; corpuscles like the white ones of blood; granular cells; bits of coagulated albumen, oil-globules, and cholesterine. In a specimen sent by Mr. Defriez of Bethnal Green to Dr. A. Clark, there were several cysts of this kind formed by successive extravasations of blood, *said to have been felt* by the patient at the time of their occurrence."

Whether the change in pseudo-cysts is or is not of an analogous character, in so far it is remarkable, that I have found, on microscopical examination, exactly the same bodies mentioned above by Dr. A. Clark in the serum taken from the meshes of an infiltrated fibroid, excepting only cholesterine. I have also found crystals of uric acid.

Dr. Clark has also informed me that he has "on several occasions examined the fluid of the cysts of fibro-cystic uterine tumours, but entirely without reference to their size, the fluid has been either sanguinolent, serous, or gelatinous."

"When *sanguinolent*, he made out the elements 1, 2, and 3, before referred to, as found in the juice of succulent fibrous tumours, with blood-crystals, *amorphous hyaline* lumps, and bits of fibrillated lymph."

"When *serous*, it was coagulable by heat, but very feebly so, compared to ordinary albuminous effusions. The structural elements resembled in character those given in a diagram, with the qualification, that Nos. 1 and 6—*i. e.*, the elements before described as found by him in the same juice of fibrous tumours—were few in number."

"When *gelatinous*, the contents were of two kinds. In one, the gelatinous appearance was due to the infiltration of a fine *fibrous* network with ordinary serum; in the other, to the infiltration of a fine network of *mucin fibres* with a very feebly albuminous and somewhat viscid fluid. The *fibrous* network disappeared under the action of acetic acid, while the *mucous* network was unaffected by it, or rendered more distinct."

"The structural characters of both kinds of gelatinous contents were much the same, and consisted of the elements already described, with the addition of mucous vacuolating and proliferating cells. These were the contents of (Dr. Clark's third variety) glandular cysts, which, not forming part of my immediate subject, I did not refer to."

This feebly albuminous character of the fluid, and the absence of hairs and epithelium, together with the presence of fibro-plastic ingredients, are characters which contrast in a remarkable manner with those found in ovarian tumours, and as such may be very useful in a doubtful case of diagnosis.

My friend Dr. Greenhalgh has informed me that Mr. Savory of St. Bartholomew's has also examined the fluid contents of these growths. The cavities contain more or less fluid, which is made up of disintegrated fibrous tissue-cells and oil-globules floating about in serum or dilute liquor sanguinis.

In true fibro-cystic disease, the epithelium-particles found in the fluid are exactly similar to those found in ovarian cystoid disease. The intensely albuminous character of the liquid, and the absence of *débris* of fibrous tissue, would make up the other chief differences.

If the fibro-cystic disease be in the ovary, we might expect to find, in addition, the large compound nucleated cells, and hairs, besides the cholesterine crystals.

Pseudo- and fibro-cysts, however, should not be mistaken for other cysts occasionally found in connexion with the uterus, but which have a different origin. These are cases where a Graafian vesicle has fallen into the cavity of the abdomen, instead of passing downwards into the Fallopian tubes. These appear to contain hairs, teeth, etc., or contents occasionally found in ovarian tumours; or, by falling somewhere within the abdomen (it may be upon the uterus, Fallopian tube, or elsewhere), they may develope true fibro-cystic disease. A remarkable example of the first kind once occurred in the Salpetrière, and was related by M. Blot before the Société Anatomique.

The tumour, which was attached inferiorly to the uterus, and closely adherent to surrounding parts, was found to be partly ossified, and to contain at one part four little bodies ranged in a row, having the aspect of incisor teeth; one of these showed a free tricuspid border, as is often observed in teeth of this kind. They were very hard and ossified, but without enamel. This case was brought before the Société Anatomique, and the discussion elicited a very able paper by M. Pigné, in which he proved that these bodies were monstrosities by inclusion. In a subsequent *séance,* M. Grivot Grandcour exhibited some uterine cysts taken from a woman aged 60. These were placed behind the organ, and formed a tumour as large as a child's head. One of these was partially ossified. The others were soft and transparent. On the opposite side—*i. e.,* anteriorly—a unilocular tumour existed, containing in its cavity hair and a butyraceous-looking matter. These bodies were, however, stated by M. Barth to be only found in the woman, and in the neighbourhood of the uterus, and were attributed by him to the escape, at the moment of fecundation, of an ovule, which then developed imperfectly: in fact, an extrauterine pregnancy. The ossification was a process of age. (Vol. xxii, p. 3.)

It is in this way that I should venture to explain Mr. Nunn's case of fibro-cystic disease before referred to, and Mr. de Méric's recent case of cystoid disease (for which he successfully performed ovariotomy), and which grew, not from the ovary, but from the Fallopian tube.

The coexistence of these pseudo-cysts in fibrous tumours is not very uncommonly observed; and the possibility of their occurrence should be borne in mind in cases where the diagnosis is difficult. Let me allude to a few examples by way of illustration.

Dr. Tanner has related a remarkable case (*Obstetrical Transactions*, vol. iii, p. 11).

An oval cyst, about nine inches broad, apparently subperitoneal, was stretched upwards from the fundus uteri, containing about a pint and a half of mucous fluid. The cavity of the uterus contained a fibrous tumour, of about the size of the half of a small orange.

Several such cases are mentioned by Mr. Paget in his *Lectures on Surgical Pathology*. Dr. Atlee mentions a very interesting case where this change had taken place in a fibroid.

He first saw the case in July 1852, when a large fibrous tumour, of the size of a seven months impregnated uterus, was diagnosed. In the September following, the tumour had greatly enlarged, and exceeded in size that of gestation at the full period; and the upper part of the abdomen had become elastic, and fluctuation was evident. In the October following, two large cysts were tapped, giving exit in the first to three pints of a dark coloured fluid, with a small quantity of blood. From the second cyst, the same quantity of clear transparent fluid was drawn. On manipulation now, the original fibrous tumour was readily felt. Although several mishaps occurred in the progress of this case—air entering within the sacs, and subsequently fœtid serum and gases being drawn out by tapping, it ultimately did well, all traces of the tumour having disappeared. (Surgical Treatment of Fibrous Tumours, *Transactions of American Medical Association,* vol. vi, p. 558.)

Dr. Jackson (*Boston Medical and Surgical Journal*) relates an example of multilocular cyst developed in the fundus of the uterus.

The symptoms during life were those of a fibroid. This patient was tapped several times. The cysts varied from the size of a walnut to that of a fœtal head. These cysts contained variously coloured fluids.

The French authors mention several examples of this disease also.

M. Barth (*Bull. Soc. Anat.,* xxvii, 55) found an abdominal tumour attached to, and taking origin in the posterior wall of the uterus, which was very large. It was a fibrous tumour, furnished also with a cyst in its interior, and holding within it about half a gallon (3 *litres*) of a citrinous albuminous liquid. There were two other small fibroids in the anterior wall, and one in the fundus.

M. Gaubier (*Bull. Soc. Anat.,* xv, 234) describes a case, also mistaken for ovarian disease, in which a large three-lobed fibroid, of two pounds weight, in which cysts were found containing a bloody serosity, filled the greater part of the iliac fossa. M. Rotereau (*ib.,* p. 135) mentions another case, also mistaken for ovarian disease, where a fluctuating tumour existed in the right iliac fossa, and was found after death to be a pedunculated fibroid, with cysts attached to the fundus. Another is mentioned by M. Icery (*ibid.,* xxviii, 135), where ovarian and uterine cysts coexisted. The uterine cyst was very large, with thick parietes attached to the organ. M. Rieux (*ib.,* xxiv, 19) relates a case of cysts of the uterus, where the patient was tapped three times. The diagnosis during life was cancer with ascites. The *post mortem* examination revealed a fibrous tumour, with a unilocular cyst, filling the abdominal cavity.

In the table which I have prepared to illustrate the effects of gastrotomy in fibrous tumours, several cases by Messrs. Brown, Wells, Hakes, Fletcher, etc., are recorded, and, with those before given will suffice as examples occurring in British practice.

*d.* These tumours are sometimes the seat of *suppuration*. Dr. R. Lee has stated that this change is a rare complication. Still it occurs more frequently than is generally believed. Such a case is quoted by M. Guyon from Huguier, in which death occurred from this cause about twenty-five days after admission into the hospital. Another remarkable case, which occurred in the practice of M. Huguier (*Union Méd.*, 1860, p. 331), is the following.

A young woman was admitted into the Hospital Beaujou with a fibrous tumour of several years' duration (and so far painless) in the uterus. It was of the size of an adult head, and had produced œdema of the extremities from pressure on the veins. The vagina was contracted circularly, so as to make it difficult to reach the os uteri. Some days after admission, she was seized with fever, and the tumour inflamed. An abscess formed in it, out of which from a tumbler to a tumbler and a half of pus came away. The uterus remained intact. The tumour became so soft, that the finger could be pushed through it. The next week, the patient was progressing most favourably. The tumour had greatly diminished in size, but its progress in this respect was slower. The excretion of pus was diminished. All evidence of compression of the veins has disappeared.

Dr. Robert Lee, in a supplementary paper (p. 281, vol. xxxiii) of the *Medico-Chirurgical Transactions*, gives also a fatal case, where a quantity of greenish yellow fœtid pus was found to exist in the very centre of a fibrous tumour. Dance also quotes another case, referred to by Guyon (p. 95), in which an incision, practised upon an interstitial fibrous tumour after death, gave exit to eight or ten ounces of pus. Lisfranc also (*Clinique Médicale de la Hôpital de la Pitié*, Paris, 1843) mentions a case where an abscess was found in a fibrous tumour.

Marshall Hall relates the case of a woman who died after parturition from inflammation and suppuration of a fibrous tumour of the uterus. (*Cyclop. of Practical Med.*, p. 388, vol. iv.)

A remarkable example of hysteria, followed by death, in which a fibrous tumour in a state of suppuration was found at the *post mortem* examination, is related by M. Cœurderoy, from the service of M. Lebert.

> There was in the upper part of the uterus an immense cyst, with thick fibro-cartilaginous parietes, which had contracted close adhesions. Inferiorly was a smaller tumour, in a state of capillary inflammation, with extravasated pus.

In addition, in this case there was apoplexy of the uterus and ovaries.

Cruveilhier has stated that occasionally uterine tumours remain latent; and that suppuration begins around them, often giving rise to cachexia, the cause of which is frequently ignored. The termination is generally fatal; sometimes, however, recovery takes place; and he mentions a case which occurred to him in Montpellier. A colleague brought him a number of bodies which a woman was passing externally from the vulva. These proved to be fibrous tumours. The suppuration set up lasted a long time. Finally, the woman recovered.

M. de Boscredon records a case which occurred in the *service* of M. Piedagnel (*Bull. Soc. Anat.*, xxix, 332), of suppuration of a fibrous tumour.

It appears to have suppurated in its centre. The tumour was removed after death. This woman, having suffered much from hæmorrhage and cachexia, died in the hospital. During life, the tumour had been recognised as implanted in the anterior lip of the cervix and anterior wall of uterus.

An analogous case is mentioned by Foucher; but in this, as in a similar one which occurred to M. Dolbeau, there was an external opening of the tumour, distinct from the os uteri, in the vagina. It is important to bear this in mind in making a diagnosis. A cancerous mass might be supposed to exist, where a simple operation would cure, even if nature itself were not able to do so for the patient. Another case of suppuration in portions is given by M. Grelet de Fleurette (same journal, vol. xxviii, p. 154), where a large uterine fibroid was found to contain several cavities, some containing blood, and some pus. M. Kœberle of Strasbourg and M. Pineau have both met with cases.

*e.* A more innocent change is that of *fatty degeneration*, described by Dr. Humphry in his *Lectures on Surgery* (sect. xxvii, p. 139). Mr. Paget found, in a large pendulous fibrous uterine tumour, a distinct circumscribed fatty tumour, as large as a walnut. (*Lectures on Surgical Pathology*, p. 480.) An analogous example is recorded by Dr. G. Hewitt (*Pathological Transactions*, vol. xi, p. 173), in the case of a widow lady aged 55, a patient of Mr. Cholmondeley, who had been regular up to the time of the report.

She had expelled spontaneously, after severe flooding, a fibroid tumour. This had been growing for a long period; and had had its growth arrested some years before its expulsion. On examination, the various centres of development in it were found softened down and converted into fatty matter, giving rise to a cystic appearance. The tumour had gradually disconnected itself. The catamenia was probably a simple periodic discharge, provoked by the irritation of the tumour.

Such are a few of the pathological changes which are observed to occur in the progress of fibrous tumours, when the change is one of softening.

II. HARDENING. Uterine fibrous tumours, when hardened, were long ago shown by Dr. Bostock (*Med.-Chir. Trans.*, vol. xix) to consist chiefly of, 1, phosphate of lime, which is the salt most abundant; 2, animal matter; 3, carbonate of lime; 4, sulphate of lime in small quantities. Following the general rule of the proportional diminution of animal and the increase of mineral deposits according to age, which is usually observed in such growths, there comes a time when the tumour is converted altogether into a calcareous mass. It is in many instances believed that this calcareous transformation, as in tubercle, is a fortunate and conservative change; and so in fact it is, if the tumours be small. Occasionally, they are spontaneously expelled *per vias naturales.* However, by their pressure on surrounding parts, they produce ulceration, and burst into the abdominal cavity or intestines, it may be the external skin. Cases are on record setting forth these several mishaps. This calcareous transformation is believed by Mr. Paget not to be true ossification, but calcareous degeneration, consisting in an amorphous and disorderly deposit of salts of lime and other bases, in combination with, or in the place of, the fibrous tissue. (Paget's *Surgical Pathology,* p. 479.) This deposit may either be peripheral or interstitial, and may occasionally, in the latter case, constitute a hard coral or ivory-looking mass. (*Ibid.*)

Sometimes these calcareous tumours are expelled *per vaginam,* a remarkable case of which is mentioned by Dr. Sumpe (*Zeitschrift der Gesellschaft der Aerzte in Wien,* Nov. 29, 1860. Braith., 1861, p. 248.) A considerable number of such examples are also recorded in the *Cyclopædia of Practical Surgery* (fifth vol., in the article on the Uterus and its Appendages). This ossification is much more common in the extra-uterine or subperitoneal varieties of fibrous tumours; and this is so far of importance in diagnosis. The deeper fibroids have not this tendency.

III. INTERSTITIAL ABSORPTION. Any one who has seen many cases of fibrous tumours of the uterus must call into mind several in which, either with very little or indeed no treatment at all, a fibrous tumour has disappeared, or has diminished so far in size as to give no longer rise to any inconvenience. That tumours, even in their active stage of growth, do enlarge and subsequently diminish, and again enlarge and again diminish, is a fact commonly observed. Sometimes this periodic increase is synchronous with the catamenial flow. Here, no doubt, it is due to temporary congestion or serous effusion. Sometimes the growth of the body persists for some months, and then diminishes for other months. The case mentioned by Atlee is one of this kind. The temporary enlargement here may be due to œdema.

It is certain that during pregnancy fibrous tumours do enlarge occasionally. Such a case is recorded by Dr. Priestley in the *Obstetrical Transactions;* and others are on record. Dr. Ashwell long since pointed out (*Guy's Hospital Reports*, 1836) that fibrous tumours especially begin to enlarge at the sixth or seventh month of gestation, thus pointing out the advisability of bringing on premature labour in these cases; and the same observation has been made by continental writers.

It is not, however, always easy to determine whether it is the fibrous tumour which diminishes in size, or the hypertrophied uterine structure around it. Cases of enlarged uterus, as a result of pregnancy, often subsequently undergo evolution; so we may have hypertrophy of the uterus accompanying a fibrous tumour of the uterus, which gives way. Sir C. Clarke, Dr. Rigby, Dr. Ashwell, and others, have mentioned cases where this absorption had taken place, though in some cases there was probably death of the tumour, which preceded its removal.

But I have met with at least two distinct cases of large fibroid, which, I should say, filled the pelvis, and materially interfered with the functions in that cavity, where the tumours have gradually diminished to the size of small apples. One of these women was a matron in a charitable institution, and was obliged to give up her place, being incapacitated for work by the size of the fibroid, and its interference with the due performance of her functions, and by general discomfort. Two years subsequently, the tumour had diminished to the size of an apple ; and she was enabled to become the active matron to a workhouse —no sinecure—this serves to demonstrate the recovery. In both these cases, however, this absorption was synchronous with the climacteric change. This fact is not new. It has been observed by several authors, English and French ; and, so far, my cases are only corroborative. In no case have I ever seen a distinct fibroid, during the permanence and activity of the uterine periodic discharge, become absorbed without active surgical or medical measures.

## *Causes of Uterine Tumours.*

From what we have already seen, it can scarcely be doubted that in pregnant women the fibrous tumour, which grows with the uterine organ itself, essentially partakes of its muscular elements; also, that in an unimpregnated but hypertrophied uterus, the same structures may be found. The point is interesting, as bearing on the origin of fibrous tumours. Every practitioner has met with cases of large, heavy, condensed uterus, and yet where no distinct localisation of condensation existed to constitute a tumour properly so called ; but a sort of general congestive hypertrophy of this organ has taken place. Sometimes, however, this is more limited, and then we have what years ago Lisfranc stated he had found; *i.e.*, uterine indurations rounded and circumscribed, offering at their surface lumps and irregularities like fibrous tumours. (S. Lee on *Uterine Tumours.*)

This view does not explain the formation of cysts, although it will fully interpret the development of those fibrous tumours without envelopes, where the tumour and the uterus are so interlaced as to render enucleation impossible. This opinion appears to be that also of some of the most distinguished anatomists of the present day. MM. Verneuil and Lebert believe that fibrous tumours of the uterus are only partial hypertrophies of uterine tissue. (*Bull. Soc. Anat.*, xxvii, 324.)

Upon this supposition, it is easy to understand how any circumstance which may bring about irritation and congestion of the uterine organ will be a cause of the growth of a fibrous tumour. The opinions enunciated on the origin of these by authors have more or less this direction. Excessive venereal excitement has been mentioned by Puchelt. Blandin believed the causes were analogous to those which produced hæmorrhoids; and certainly menorrhagia in females is often produced by the same causes which produce piles in men—*i. e.*, hepatic and portal congestion. According to Lisfranc, a localisation of congestion will develope a fibroid. I have often heard patients refer to a sudden crick felt in the uterus on lifting up a heavy weight, or after a sudden fall, as the cause of a fibrous tumour. Here we have a reason why a determination of blood should be localised. Mr. Brown believes they are often developed, in single women especially, from habits of delection, and has even foretold their occurrence in this way. Dupuytren and Krüll alone assign extraneous causes; Krüll, advanced age; Dupuytren, hereditary predisposition. The facts I have collected, however, do not justify these last opinions. Statistics, I think, throw some light upon this question.

## FREQUENCY OF FIBROUS TUMOURS.

### 1.—*Fibrous Tumours.*

| Age. | Married or Widows. | Single. | Condition not stated. | Total Number. | Age not stated. | |
|---|---|---|---|---|---|---|
| | | | | | Mar. | Sing. |
| 16—20 | — | — | — | — | | |
| 21—25 | 3 | 2 | — | 5 | | |
| 26—30 | 17 | 5 | — | 22 | | |
| 31—35 | 18 | 13 | 5 | 36 | | |
| 36—40 | 22 | 5 | 6 | 33 | 6 | 7 |
| 41—45 | 21 | 10 | 3 | 34 | | |
| 46—50 | 12 | 6 | 6 | 24 | | |
| Above. | 7 | 2 | 7 | 16 | | |
| Total. | 100 | 43 | 27 | 170 | | |

### 2.—*Polypi.*

| Age. | Married or Widows. | Single. | Condition not stated. | Total Number. | Mar. | Sing. |
|---|---|---|---|---|---|---|
| 16—20 | — | — | — | — | | |
| 21—25 | 3 | 2 | — | 5 | | |
| 26—30 | 17 | 3 | 1 | 21 | | |
| 31—35 | 13 | 6 | — | 19 | | |
| 36—40 | 25 | 4 | 1 | 30 | 19 | 3 |
| 41—45 | 20 | — | 4 | 24 | | |
| 46—50 | 23 | 2 | 7 | 32 | | |
| Above. | 15 | — | 4 | 19 | | |
| Total. | 116 | 17 | 17 | 150 | | |

### 3.—*Fibrous Tumours and Polypi conjoined.*

| Age. | Married or Widows. | Single. | Condition not stated. | Total Number. | Mar. | Sing. |
|---|---|---|---|---|---|---|
| 16—20 | — | — | — | — | | |
| 21—25 | 6 | 4 | — | 10 | | |
| 26—30 | 34 | 8 | 1 | 43 | | |
| 31—35 | 31 | 19 | 5 | 55 | | |
| 36—40 | 47 | 9 | 7 | 63 | 25 | 10 |
| 41—45 | 41 | 10 | 7 | 58 | | |
| 46—50 | 35 | 8 | 13 | 56 | | |
| Above. | 22 | 2 | 11 | 35 | | |
| Total. | 216 | 60 | 44 | 320 | | |

The preceding tables prove that the disease is more common among the married than the unmarried women.

Out of 156 cases of fibrous tumours of the uterus, 106, or 68.5 per cent., occurred in married women.

Out of 152 cases of polypi of the uterus, 135, or 82.2 per cent., occurred in married females; or, taking polypi and fibroids of the uterus together, out of 301 cases, 241, or 80.2 per cent., were married women.

This result, favourable as it is for spinsters, is still more so when we remember that, as a rule, there are generally about twice as many spinsters as married women. This is the proportion which Quetelet obtained for Belgium. Out of 1,000 women, 628 were single, 295 married, and 77 widows. The same general law would apply to England. If we take the census of 1851, the married females amounted to 3,461,524; the widows, to 795,590; and the unmarried, to 6,478,805, the preponderance being greatly in excess in favour of the unmarried.

But it is clear that, to judge of the potency of sexual excitement as a cause of fibrous tumours, it is imperative to take only the ages during which sexual power is active; and here the rule laid down admits of much modification.

The average age of a wife in Great Britain is 40.65 years. It is at very nearly this average age that the number of fibrous tumours and polypi is in excess.

But, if we take the proportion of unmarried, married, and widowed women, to 100 females living in Great Britain at these ages, their number will be as follows.

| Ages. | Spinsters. | | Wives. | | Widows. | |
|---|---|---|---|---|---|---|
| 15 to | 97.5 | | 2.4 | | .03 | |
| | | 83.5 | | 16.1 | | .26 |
| 20— | 69.6 | | 29.8 | | .49 | |
| | | 55.1 | | 43.5 | | 1.2 |
| 25— | 40.7 | | 57.3 | | 1.9 | |
| | | 33.2 | | 63.6 | | 3.0 |
| 30— | 25.8 | | 70.0 | | 4.1 | |
| | | 22.3 | | 72.3 | | 5.8 |
| 35— | 18.8 | | 74.6 | | 6.5 | |
| | | 17.3 | | 74.3 | | 8.4 |
| 40— | 15.6 | | 74.0 | | 10.3 | |
| | | 14.6 | | 73.1 | | 12.1 |
| 45— | 13.7 | | 72.2 | | 13.9 | |
| | | 13.4 | | 69.5 | | 16.9 |
| 50— | 13.2 | | 66.8 | | 19.9 | |
| | | 12.9 | | 52.1 | | 34.9 |
| Above. | 12.6 | | 37.4 | | 49.9 | |
| All ages. | 60.3 | | 32.2 | | 7.4 | |

At the ages between 35 and 40, we find 22 cases of fibrous tumours among the married and widowed, against five among the single—*i. e.*, 4.4 as many; whereas the married women exceed the unmarried by only 3.7, giving clearly the advantage to the unmarried. The same is true for polypi. We must, therefore, admit that, as the disease occurs more frequently among married women than among single women than their numbers justify, married life favours their production.

2. Before wives, however, reach their average age *i.e.*, 40—or, in other words, before a woman reaches that age at which most fibrous tumours occur—there

is a period of probation to go through—*i.e.*, a certain amount of sexual excitement for their development, assuming that sexual excitement is a cause.

If it be so, it may in a certain degree be measured by the ages at which most marriages, the strongest sexual passion, and the greatest fecundity occur. Now, the marriage table for Ireland is as follows to a maximum 100 population.

| Age. | | Females. | | Maximum age. |
|---|---|---|---|---|
| Under 17 | ...... | 13.3 | | |
| 17—25 | ...... | 79.26 | | |
| 26—35 | ...... | 79.32 | ...... | 26.34 |
| 36—45 | ...... | 11.1 | | |
| 46—55 | ...... | 1.5 | | |
| Above 55 | ...... | .16 | | |

In England, most women are found to marry a little earlier—22.80.

Again: the sexual offences, or offences arising from sexual desires, may be fairly taken as a measure of the sexual passion. I select the tables of Ireland and Scotland, where only the sexes are distinguished. The periods are, for Ireland 1845-7, and Scotland 1842-6; and the proportion given to 100,000 population.

| Age. | | Females. | | Maximum age. |
|---|---|---|---|---|
| 16—20 | ...... | 8.43 | | |
| 21—30 | ...... | 14.96 | | |
| 31—40 | ...... | 7.96 | ...... | 26.66 |
| 41—50 | ...... | .57 | | |
| 51—60 | ...... | .78 | | |
| Above. | ...... | — | | |

Lastly: the fecundity tables give pretty near the same age. These are taken for Ireland for the two years 1839-40.

The table for Sweden and Finland, also annexed, makes the maximum age a little higher than the Irish tables.

*Irish Fecundity Table.*

| Age. | Annual number of deliveries to a maximum 100. |
|---|---|
| Under 17 | 44.96 |
| 17—25 | 96.94 |
| 26—35 | 90.28 |
| 36—45 | 50.95 |
| 46—55 | 23.51 |
| Above 55 | 7.06 |

*Sweden and Finland Fecundity Table.*

| Age. | Annual number of deliveries to a proportion of 100 fem. living. |
|---|---|
| 15—20 | 2.48 |
| 20—25 | 12.56 |
| 25—30 | 21.64 |
| 30—35 | 22.82 |
| 35—40 | 18.32 |
| 40—45 | 9.54 |
| 45—50 | 2.28 |
| 50—55 | 0.05 |

Thus, therefore, it would appear that the age of greatest fecundity is somewhere about 26, at which age we must presume that sexual irritation is strongest, and the uterus most likely to develope the beginning of those local affections which terminate in the development of a tumour.

And this appears to be the usual case. From a table of 61 cases, furnished by Dr. West, we obtain the following results :—

| Age of patient. | First came under observation. | Symptoms commenced. |
|---|---|---|
| Under 20 | — | 2 |
| 20—30 | 6 | 11 |
| 30—40 | 23 | 28 |
| 40—50 | 25 | 17 |
| 50—60 | 7 | 3 |
| | 61 | 61 |

While thus the greater number of cases appear to have first *come under observation* between 30 and 40, it was in the decade preceding that they appear to have *commenced*, very shortly after the period of greatest sexual irritation.

Nor is it the case that fibrous tumours, as a rule, take, on an average, so many years before their discovery. I have no facts to prove or disprove this inference. Those that we have merely justify us in asserting broadly that the age of sexual excitement manifestly precedes that of the formation of the greatest number of fibrous tumours.

And this conclusion is strengthened by another kind of evidence, to which I have only time to allude—the well known fact that, with the diminution of sexual excitement, these tumours diminish in size, sometimes disappear altogether. They are also much rarer after the ages when the catamenial function ceases. I cannot now recall to my recollection a case of fibrous tumour enlarging after this cessation, although many are the instances where, having been produced anteriorly, they remain dormant subsequently.

The researches which I have made lead me also to make another statement not generally admitted. Women affected with fibrours tumours are not necessarily barren. Out of 22 married women affected with fibrous tumours, only 5 were barren. Out of 24 affected with polypi, only 3 were barren. Consequently, out of 46 women married, 36, or 82.9 per cent., had children; only 8 were barren; 12 had 1 child, 6 had 6 children, 3 had 3 children, 2 had 5 children, 3 had 7, 1 had 9, and 3 had above 10.

# LECTURE II.

## ON SOME POINTS HAVING REFERENCE TO THE DIFFERENTIAL DIAGNOSIS OF FIBROUS TUMOURS OF THE UTERUS.

Mr. President and Gentlemen,—It is not my intention, in this lecture, to enter into a detailed account of all the symptoms of fibroid disease of the uterus, or of the differential diagnosis between it and every other disease with which it may be confounded. It would be, I imagine, as much a loss of your time as it would be objectionable in me, to endeavour to elucidate points upon which you are as well informed as I can be. In an assembly like the present, and at a time when abdominal operations are so commonly performed, and have proved so successful as a means of relieving disease previously deemed incurable, it is well to aim at the development of surer means of diagnosis; and this I believe to be all-important in the present state of medical experience. Already the published annals of ovariotomy tell strange tales. Not only have pregnant women been operated upon for ovarian disease, but Mr. John Clay has given us an aggregate list of thirteen cases of attempted ovariotomy, where extra-ovarian tumours were removed. Of these, eleven cases were uterine growths. Mr. Clay has given us, in addition, twenty-three cases where ovariotomy was attempted, and abandoned in consequence of the disease being extra-ovarian. Of these last, twelve were examples of uterine disease. (Kiwisch on *Diseases of the Ovaries*, translated by John Clay.) Altogether, as I hope to show in the sequel, the operation of gastrotomy for fibroid disease of the uterus has been performed, incompletely in fifteen cases, and completely in some thirty-four cases; yet, with but very few exceptions, ovarian disease has been diagnosed during life. Let me not, however, be understood as arrogating to myself better powers of diagnosis than to others. I make no doubt that the larger number of these errors in diagnosis occurred at a former period, when knowledge and experience were less general. I also believe that, even now-a-days, accurate diagnosis in some cases is impossible. Still we are in a position at present to be more exact than we were; and this chiefly from the greater number of facts now extant, and the appreciation of the very mistakes previously made; also because we now possess certain instruments which materially assist our powers of diagnosis. Some of these, if I mistake not, will be shown in this room to-night for the first time.

The frequenters of the Samaritan Hospital last year may remember a remarkable case in one of Dr. Savage's beds, which made some noise about that time. This patient had seen several physicians connected with the hospitals. The eminent accoucheur to one, after two careful examinations, said it was indubitably pregnancy. Another, similarly circumstanced in another metropolitan hospital, said it was ovarian disease; a third, that it was extrauterine pregnancy; a fourth, that it was a fibroid. One eminent French surgeon, then in England, stated in the most positive terms that it was a fibroid, although unconnected with the uterus. The majority amongst us, however, were of opinion that it was ovarian disease. An exploratory incision verified this diagnosis. Ovariotomy was performed by Mr. Wells, and the case did well.

This example illustrates well the difficulty now-a-days of diagnosis even.

I think the subject of the differential diagnosis of fibrous tumours of the uterus may be advantageously considered under the three following heads.

I. The mode or positions for examination, and previous history of an affected patient.

II. The particular notation of special symptoms, and the testing of their relative value.

III. Particular reference to the differential diagnosis between pregnancy and ovarian disease, the two most common conditions likely to be mistaken for fibroid disease of the uterus.

I. The two points of great importance in the examination and diagnosis of these cases, upon which I wish first to dwell, are: 1. The position in which the patient is placed for examination; 2. The importance of obtaining the particulars of the previous and early history, which throw immense light on cases which otherwise, by mere examination, it would be quite impossible to make out.

1. As to position for examination: I am satisfied that, in obscure cases, to give true results, it must greatly vary. The position on either side, on the back, or even on all fours with the nates raised, and that usually adopted in *ballottement* (the patient standing on a chair and leaning over you), are each necessary in individual cases; and this is at once obvious, if we look to the extraordinary mistakes made. In fibrous tumours this last position is especially useful, because patients affected with them, even in flooding cases, are often unusually fat and corpulent; so that palpation externally affords but indifferent help in measuring extent or dimensions; even fluctuation does little, unless it be assisted by the erect position and the finger in the vagina. The weight, then, of the affected organ, allows it to fall and play upon the finger within the vagina; whilst the point from which (if pressure be exerted above on the abdominal parietes) it is felt in the vagina, indicates the height to which the tumour extends within the abdomen, and also the connexion with the uterus by contiguity of surface.

By change of position alone, we can often diagnose the connection or disconnection of the uterus with an abdominal tumour.

I had this fact very forcibly brought to my own mind in a case of ovarian disease. The diagnosis here was very difficult. The uterus was closely connected with a large tumour in the left iliac fossa. In most positions, the movement of the one affected the other, although considerable *free* movement was possible in the iliac tumour. Was it a pedunculated fibroid attached to the uterus, or an ovarian growth? It turned out to be the latter. When the patient was made to lie down inclined to her left side, and when the sound passed within the uterus was depressed at its handle-end, so as to push the uterus away from the left side towards the right side, *then* the iliac tumour could be felt to be altogether free from the uterus. The diagnosis made, therefore, was ovarian disease with a short pedicle; and so it proved to be on operation.

Again, the *sound* may often be passed in one position, and not in another. The changed position allows the weight of the diseased organ to bear in a different direction; and thus the existence of adhesions or enlargements in particular directions is made out. The os uteri also, may only be felt sometimes in one of the positions, when the uterus is much displaced by the tumour.

Upon the subject of adhesions, more mistakes are perhaps made than upon any other, more especially if they be pelvic, and when the patient is examined in the recumbent or erect position. The test generally given is a full inspiration; when, if the abdominal parietes move freely over the tumour, adhesions are said not to exist; and *vice versâ*. Unfortunately, however, in fat subjects especially, either this movement is not perceptible, or the skin moves over the muscles; and so we are deceived. Also, if the tumour dips low within the pelvis, it may be difficult to raise it in the ordinary position; and so adhesions may be inferred to exist on one or other side of the pelvis; yet the operation will prove that there were none. The adhesions may be present superiorly, higher up in the abdomen. Had the patient been placed on all fours, and slightly on one side, the tumour would probably have moved a little from the pelvis, and the non-existence of adhesions there would have been made out. The stethoscope also, or hand, may make out a *friction*-sound. But this is no evidence of adhesion, only of dryness of the peritoneal covering; and it may disappear next day.

And here I think I had better say a few words upon the use, not of one only, but of at least two sounds, used in two of the pelvic passages at the same time; I mean the bladder, and uterine cavity, and rectum. By their combined action, the position of the fibroid enlargement and its situation can generally be very accurately made out. External abdominal manipulation does a good deal, but it is insufficient. Suppose there be little or no menorrhagia, so that the tumour is most probably a surface or an intraparietal tumour, the finger and sound afford a ready means of exploration *per vaginam*. If it be situated in the posterior wall, the double *touche* will often clear up the case: better still, one finger in the rectum or vagina, with the uterine sound in the cavity. The space in the case between the extremity of the sound will be greatest at this point. So, if it be in the anterior wall, the use of two sounds—one in the bladder, and the other in the uterine cavity and the space included between them—will determine it. In either case, a small fibrous tumour, without this precaution, may be mistaken for retroversion or anteversion. Dr. Atlee mentions several cases of error in this particular. I have seen the same difficulty occur where, besides retroversion, the uterus was congested and large—not an uncommon condition. Where the tumour is high up above the true pelvis, without two sounds I do not think it possible to say whether a given tumour is in the anterior or in the posterior wall. Except in the exceptional case where we have to do with a thin woman, with thin abdominal parietes and an atrophied anterior wall of the uterus, so that the one sound *in utero* can be felt externally by palpation over the abdomen, I do not think it could be made out otherwise; for the finger is not long enough; and I know positively that an eminent practitioner actually cut through the uterus into the peritoneal cavity, from not having previously satisfied himself, by the use of two sounds, of the thickness of the uterine parietes, or exactly made out the position of the fibroid.

Suppose the tumour in the lateral wall of the uterus. Even here, I believe, and especially if on the left side (owing to the sigmoid flexure of the colon), the ordinary digital examination *per vaginam* may be assisted by two sounds; one placed in the uterine cavity; the other in the rectum or bladder, and pushed up or down laterally. The direction of the uterine sound, generally inclined to the side opposite to which the tumour exists, is important. It is well, in all such cases, carefully to empty the bladder before manipulation. I have seen a tumour, solid in its contents, in a thin person, because the bladder was pushed against the abdomen, yet convey the feeling of fluctuation, and, by the neglect of this simple precaution, be mistaken for an ovarian cyst.

I have dwelt upon the use of a sound in the rectum in some of these cases. I think that, indeed, in some cases it is indispensable, if we wish to make a correct diagnosis. The finger will not always suffice, more especially if the tumour be large and high up.

There is a most interesting case detailed by Dr. Waller, which bears upon this point (*Medical Gazette* for April 1853). The case occurred in the practice of Mr. Evans of Blackfriars Road. He diagnosed a large exostosis, of stony hardness, occupying the promontory of the sacrum; so that the antero-posterior diameter of the upper pelvis was reduced to an inch and three-eighths. The lateral diameter was also encroached upon. From its hardness, immobility, and apparent connexion with the sacrum, from which it could not be separated, he also concluded it was an exostosis. The Cæsarean section was performed. The patient, unfortunately, died. At the *post mortem* examination, the case proved to be one of fibrous tumour of the uterus, of the hysteromatous variety.

But the use of two ordinary sounds has some disadvantages. The distance between them, when out of sight, cannot be always accurately imitated when an attempt is made to replace them for purposes of measurement, out of the body, in the position they occupied within it. The cavities may be of different lengths, and so preclude measurement altogether. To remedy these inconveniences, I have constructed the instrument I now show you, and which I have called the *pelvimeter*. It consists of two sounds, but of unusual length. On one of these there is a moveable pin, which, by means of a screw, can be made to move up and down, or fixed at any point. This sound is graduated upon its inner side by the ordinary inch degrees, which are marked 1, 2, 3, 4, etc. The other sound has along its middle two-thirds a slit, within which the end of the pin before alluded to may be moved to and fro. At the lower end of this is a screw, to which is attached a transverse bar, also graduated in inches and eighths of inches; but, to avoid confusion, they are marked by letters. The sounds, the upper parts of which are very soft, being placed in any two cavities, and bent in any manner required, are then locked, and the position noted and marked by the transverse bar; and when the two parts of the instruments are removed separately, and readjusted, out of the body, as they were within it, the exact distance of the extreme ends can at once be measured. But, in practice, we sometimes meet with difficulties. Supposing the bladder does not reach as high as the uterine cavity, or *vice versâ*, then the thickness of the anterior wall must be determined another way. We must put one blade within the bladder, and the other on the outside of the abdominal parietes. Thus the thickness of the abdominal walls may be determined. Then, the second time, if one blade be placed within the uterine cavity, and the other upon the abdominal parietes, the distance between these two points, *minus* the known thickness of the walls, is the thickness of the anterior wall. So also, upon the same principle, with one blade within the rectum and one upon the spine first, and then, secondly, one on the spine and the other within the uterine cavity, the difference made out will determine the thickness of the posterior wall. Sometimes the folds of the rectum render the passage of the rectal sound difficult. In this case, the passage of a largish gutta-percha or caoutchouc tubing, properly prepared, may precede that of the sound; and the sound needs only to be passed within the tube. It is especially in cases where the tumour is high up, or extends above the true pelvis, that this instrument will be found so necessary, if we wish to make a correct diagnosis. In its absence, I have seen a tumour in the anterior wall taken for one in the posterior wall, the examiner being deceived by the position of the os, which was near the pubis.

2. The second point upon which I wish to dwell is the necessity, in these cases, of a very close and cross-questioning examination into the particulars of the previous history. Important as this is in most cases, it is exceedingly so in uterine fibroids. I believe that many errors of diagnosis may be referred to imperfect inquiries in this respect; parties who examine such cases taking, as it were, the cue too readily from the idea of the patient, or mere external and internal manipulation. Thus the ideas of presence or absence of pregnancy are sometimes so strongly set up by the patient, who perhaps has had several children before, that the physician is often taken off his guard. I have known several women who actually asserted that they have felt the movements of the child in

cases of simple fibrous tumour. For, although at first sight the difference between such cases appears very simple, we shall find in the sequel that it is not always so. Then there are many cases in which an ordinary examination will not suffice to make out the distinction between cellulitis or hæmatocele and fibrous tumour. I have seen the former two affections frequently confounded; and have myself been quite at a loss to say, even after very close examination, whether such tumours were fibrous or not. Suppose, in fact, a large tumour *in utero*, and chiefly pelvic, impacted within the pelvis. You find the uterus fixed. You come against a large tumour. You can detect no fluctuation ; all you can ascertain is, that it involves the uterus. Fibrous tumours, you will say, are not generally fixed ; and the cellulitis is generally more extended on one side than on the others. Granted. But the latter is not always the case ; and, in fibrous tumours, the uterus may, either from its size or from some adhesions, lead to a conjoined fixation of the uterus. Here, therefore, is one advantage of knowing the early history. The suddenness of the symptoms in hæmatocele, the marked inflammatory symptoms in cellulitis, and the tense fixation of the uterus, which is generally much less marked in fibrous tumour, will assist the diagnosis, more especially if not conjoined with menorrhagia.

But there is another way in which we can usually distinguish between cellular abscess and hæmatocele and fibrous tumour, more especially if the latter be not impacted *in utero*. The instrument which I now show you, and which, for want of a better name, I would speak of as the uterine *kinometer* (*kineō*, I move), will enable us to measure the amount of uterine movement very accurately. It is, in fact, a speculum, closed at the vaginal end by a caoutchouc membrane. The distal end terminates in a glass tube bent at a right angle, in a part of which there is a tap. The whole is filled with coloured water. In one which Mr. Coxeter has made for me, there is at the distal end, instead of a glass tube, a watch plate duly graduated, upon which a needle in connexion with the water moves. The vaginal end being pressed upon in the first case, the coloured water rises in the tube; in the second, the needle moves. When used, however, in the vagina, the tap in the first case, a screw in the second, is closed; so that the fluid is not forced outwards. Both are opened after the introduction of the instrument. We then notice two movements—one synchronous with the pulse, a *pulsatory* movement; the other with the respiration, a *respiratory* movement. If a healthy person be made to hold her breath, at each pulse you will observe the fluid rise and fall in the tube. The rise in this case is slight. If, however, you desire her to make a long inspiration, the fluid rises in the tube considerably, and as completely goes down with the expiration. The uterus, in fact, comes down with the diaphragm, like the ordinary viscera; and so the extent to which the water rises in the tube, or the needle moves round, is the index of the mobility of the uterus, which can often be more forcibly pushed down by the hand. In hæmatocele and cellulitis, the respiratory movement is mostly absent altogether, and the pulsatory alone remains.

In fibrous tumours, both are generally obvious, unless the growths be situated so high up that the instrument cannot reach them, or firmly impacted—a comparatively rare complication.

II. The symptoms of fibrous tumour most dwelt upon in speaking of the disease, are an enlarged abdomen, with a hard rounded and solid tumour to be felt through the abdominal parietes in and about the uterine region, extending sometimes as high as the epigastric region, both lumbar regions being clear on percussion, and the umbilicus sunken in, not projecting. The tumour is also to be felt *per vaginam*, involving the uterus; an occasional loud and systolic souffle is to be heard over the tumour; menorrhagia is more or less intense; there is absence of fluctuation; the length of the uterine cavity is increased; and, lastly, owing to the close union of the uterus and bladder, the growth is drawn so near the abdominal walls, that it precludes the passage of the hand low down between the tumour and the walls of the abdomen. I will speak of these symptoms as I go on, to test their relative value.

1. *Physical Hardness, Roundness, and Solidity of the Tumour.* The feel of a fibrous tumour has been considered by many as almost pathognomonic. This, in connection with its rounded and lobulated character, is such, that the combination of the two characteristics

would seem to make error almost an impossibility. Any one, however, accustomed to examine cases of cellulitis and hæmatocele, must be satisfied to the contrary. I know that the same thing has been observed in cases of ovarian dropsy; and it may be laid down as a general proposition, that a *thin* fluid, and *à fortiori* a *viscid* one, may be included in an inelastic bag, and convey to the touch the impression of a solid.

I will illustrate this law by an experiment; and then mention a remarkable example in the living subject. Here is an ox's bladder contained within a calico bag. This bladder has been kept in spirit for a week, and is quite inelastic. The calico bag I put around it lest the bladder should burst. This bladder is now full of water, and fluctuation is quite evident everywhere. At its opening, however, you see I have affixed a tube connected with this pump, by which I can force in water *ad libitum*, securing its retention by this stop-cock in the connecting tube. As I pump in water, you will find that fluctuation will gradually cease, till none of you shall be able to detect it; on the contrary, it will feel quite like a solid. If this be so with so thin a covering as this membrane and piece of calico, *à fortiori* will it be difficult in many cases to recognise fluctuation through the abdominal parietes; for I am quite sure fluids are contained within cavities of the body quite as tensely as in this bladder.

The following case, however, is so satisfactory on this point that I cannot but mention it.

An inmate of Bedlam Hospital, about 35, declared herself pregnant; and Mr. Lawrence requested Dr. Greenhalgh to see her. Dr. Greenhalgh kindly allowed me to accompany him in his visit. We found a woman with a large tumour extending to above the umbilicus, very hard, nodulated, and giving altogether the impression of a solid tumour. The breasts, however, gave no indication of pregnancy. An examination *per vaginam* conveyed the same impression. The os, however, was hard; evidently that of an unimpregnated woman, and high up. The enlargement was chiefly in front of the uterus; and conveyed generally the same fibrous sensation. She passed urine freely; and indeed some was shown to us. On more carefully examining the tumour *per vaginam*, we thought that at one part we could detect some very obscure fluctuation, or at least a part less hard than others. It was thought wise that the bladder should be emptied of its contents. This was done; and about a chamber-pot and a half of thickish urine was drawn. On examining the abdomen after the operation, the tumour was gone; and yet, had we trusted to mere manipulation, both Dr. Greenhalgh and I would almost have positively asserted that, if ever we had before felt a fibrous tumour, this was one.

2. *The Auscultatory Signs of an Uterine Fibrous Tumour* are four in number: *a.* Two souffles, one a tubular, another a vesicular murmur; *b.* A thrill; *c.* A single or double cardiac sound; *d.* Absence of multilocular arrangement indicated on percussion.

*a.* Fibrous tumours are sometimes the seat of a souffle. Most writers do not discriminate between the two, and appear to refer them to the same cause. Thus, it is described by Dr. M'Clintock as always

> "Synchronous with the pulse; sometimes short and abrupt, a mere whiff accompanying each arterial pulsation; at other times, prolonged and musical, and not to be distinguished by the most acute and practical ear from the *bruit placentaire*. Like it, it is occasionally loud and intense for some pulsations; then becoming feeble and almost inaudible. Again,

it can be diminished and suppressed by moderate pressure of the stethoscope over the spot. It is present in those who have sustained no loss of blood, as well as in the anæmic." He adds that, "although a very interesting phenomenon, it is not one of any special diagnostic value, being common to pregnancy and ovarian disease, which are the two conditions most likely to be mistaken for fibrous tumour of the uterus." (McClintock's *Diseases of Women*, p. 131.)

However unwilling to differ from so high an authority, I cannot but take exception to the sweeping conclusion drawn. Nothing can be more graphic and true than the greater part of this description; but I think the fact is, that two very different souffles are here spoken of. The true *tubular* souffles are, so far as I know, very rarely, if ever, heard in pregnancy and ovarian disease. The *bruit placentaire*, or one very like it, may be, perhaps often is.

Now, I believe that these two souffles are produced by two different causes. The first, or *vesicular, bruit placentaire*, if you like, is produced by the combined action of the large vessels immediately coming into and supplying the organ. The latest writer on the uterine appendages, Dr. Savage, believes these to be the only cause of souffle in fibroids, which are supplied largely by veins and arteries, usually at each side.

But, I imagine, these produce only the vesicular murmur. The same cause produces them in pregnant uteri; and it is not due to placenta, since it is heard after delivery, as long as the vessels supplying it are in the hypertrophied condition. It was long since shown by Nægelé (*On Obstetric Auscultation*, 1838), that, in aneurismal varix, where a direct communication for the blood exists, so that it passes from the artery to the vein, the opposed or interfering currents gave rise to a sound which may exactly resemble the *bruit placentaire*. This sound is also heard loudest at the point where the uterine arteries, reaching the broad ligament, become thicker in diameter, more tortuous, and sink into the uterus. How far the connexion between the arteries and veins in the pregnant or hypertrophied uterus may assist in the production of this sound, or whether the general circulation throughout the uterus must be taken into account, because so extensive, is a point for future inquiry. If we consider, however, that the arteries in the hypertrophied organ directly communicate with the large uterine veins; either, according to the Hunters, through the cavernous structure of the placenta; or, according to Weber, through the network of colossal capillaries; or, according to Goodsir, through a great cavity, which is everywhere traversed or intersected by filamentous prolongations of the uterine veins—we see how, physically, a sound like that of aneurismal varix could be produced by causes somewhat analogous. The later researches of Dr. Savage will rather explain the production of the sound from an extended circulation, if we assume the same structure to be present in the impregnated organ, only more extended in the hypertrophied or pregnant uterus. Now, it is unquestionable that, in many cases of fibrous tumours at their connection with the uterus, we have, as in pregnant uteri, "elephantine venous sinuses." Such was found to be the case at the *post mortem* examination of Dr. Matthews Duncan's example of fibrous tumour, to be hereafter noticed.

This uterine murmur, or *bruit placentaire*, in either case originating from the same cause, is destroyed by pressure, if this be sufficiently strong; it may be by the stethoscope; it may be by intense uterine contraction, particularly in the vicinity and all around the *locale* of its production, exactly as it is abolished at the height of an uterine pain. Auscultation proves, then, that the souffle, after gradually rising in pitch up to the moment of greatest uterine contraction, becomes at last inaudible, except at the groins, where it is still heard, though more feebly so. For the same reasons, also, it is not heard immediately after delivery, when the uterus is firmly contracted, but again becomes audible in twenty minutes or half an hour afterwards, when, the uterine muscles having somewhat relaxed, the vessels again enlarge; a state which persists, except at intervals, for forty-eight hours or so, till such time as, in the process of involution, the vessels become permanently smaller. This, then, is one souffle which is occasionally heard in fibroids, and in every way resembles the placental souffle; and it is heard loudest at the groins, or over the entrance of the uterine arteries.

The *tubular* souffle, however, is different. It bears the same relation to the former as bronchial respiration does to vesicular; and is, I believe, due to pressure upon the aorta, and direct transmission of the aortal sounds through the fibrous growth. It needs only the continuity of a solid body between the aorta and abdominal parietes, and the aorta to be slightly compressed thereby, to give rise to these sounds.

A remarkable case, illustrative of this explanation, is given by M. Hérard (*Bull. Soc. Anat.*, xxv, p. 148), where a very thin woman complained much of epigastric pulsations. There was no tumour; but auscultation revealed a souffle and a thrill. The case was diagnosed as one of aneurism. She died shortly of phthisis. The *post mortem* examination revealed a voluminous and also indurated left lobe of the liver. This it was that transmitted the aortic beats, and, by compression, produced the souffle.

We have, doubtless, all met with analogous cases, particularly in weak females, and especially where the middle lobe of the liver was indurated. Pressure over any large artery by a stethoscope will give rise to the same sound.

The position in which this sound is heard loudest also varies from that where the vesicular murmur is most audible. This is strongest at the inguinal region; the tubular souffle is generally heard loudest at some prominent point of the tumour, or within the vagina upon the inferior portions of the growth. It requires also some strength to compress the aorta through a large fibrous tumour; and hence one reason why it is rarely, if ever, destroyed by pressure of the stethoscope.

*b*. This tubular souffle is occasionally accompanied by a *thrill*. This thrill is very similar to that which is communicated to the ear in the case of an aneurism of the aorta, as M. Hérard's case proves. Indeed, in well marked cases, the musical note which accompanies the souffle and thrill are so exactly like the sounds heard in cases of aneurism in the neighbourhood of the heart, that it would seem impossible to detect a difference. Now, so far as I am aware, a thrill is never felt either in ovarian disease or in pregnancy. This is also the case in regard to the musical note. Once only have I heard this sound in the case of pregnancy. Then it was heard with the stethoscope upon the sacral region, the patient lying on her abdomen; and we can understand this. The aorta was pressed upon by the enlarged uterus, and the musical note, which could not be transmitted through the liquor amnii, was not heard in front. Behind, through the solid sacrum, it was readily heard. So far, this exceptional instance is a good explanation of its occurrence in fibroids.

*c*. Closely related to the tubular souffle is the *single* and *double* cardiac sound. This one sign, revealed by auscultation, I think most important; the more so, as it has not been hitherto sufficiently dwelt upon.

Let us remember that a fibrous tumour is, in most cases, a solid tumour. If it be of moderate size, and in any way can be or is compressed against the aorta directly or through the uterus—if the fibroid be placed in front of the organ—then the sounds of the aorta should be transmitted through the tumour. I do not know why it is; but these sounds are observed in practice to be of two kinds: first, a *single* sound synchronous with the systole of the heart; secondly, two sounds synchronous with and representing the double sound of that organ. I believe that, wherever either of these sounds occur, you have a solid tumour between your stethoscope and the aorta; and so that it is a favourable argument, *cæteris paribus*, for believing the tumour to be fibrous. It may occur in scirrhus of the uterus also. This sound is very distinct from *impulse.* I have seen and felt impulse in ovarian dropsy; but then the sound is not heard. This is especially true in regard to the *double* cardiac sound. Ovarian tumours, except in very exceptional cases, and only where they are solid, if at all, do not transmit the cardiac sounds; fluids being generally non-conductors of sound.

I have said that the tubular souffle is often heard loudest within the vagina. Occasionally it may be heard here with a common straight stethoscope; and if this be long, and made of glass, it is very easily applied. The patient is put on her left side; the nates are brought to the edge of the bed; and the thighs are well flexed on the body. If the woman be not too fat, and have a good perinæum, and pressure be made on this part by the stethoscope, the instrument impinges the wall of the vagina against the tumour, and the souffle may be heard through it. In stout women, the stethoscope may be safely introduced *per vaginam* and made to press upon the tumour; and, because made of glass, the rubbing of the clothes upon it is scarcely heard, so that no exposure is needed.

I have also used a curved stethoscope made of glass with advantage. It may then be passed when the patient lies on her back.

As a rule, however, I prefer the instrument I now show you, which I call a *vaginoscope*. It consists of the ordinary double stethoscope, to the distal end of which is attached a wooden speculum. This may be introduced as a speculum; and the ear-pieces being applied to the ear convey any sounds heard in that region. At any rate, in obscure cases, you will find it useful.

I cannot better exemplify the truth of the preceding statements than by quoting the following remarkable case.

Miss C., aged 42, had pretty good health up to five years ago, since which period she had not felt so strong. The catamenia had always been regular; but until lately rather under time than over, and lasted five or six days. For the last two years, she had been more unwell; the period had lasted a week altogether, lingering a little for the succeeding week; recurring every three weeks or twenty-three days. This increase was due, not to clots, but to an unusual quantity of water, which obliged her to use two napkins at the same time. The function began at the age of 17 or 18. Before 22, she had had dysmenorrhœa for one day, not since.

About three years and a half ago, on her lifting up a heavy weight, she felt something give way in her side as if she had twisted herself there; and she could not raise herself erect for the pain for a few minutes. Three years ago, while rubbing herself for a stomach-ache she felt a round tumour in the left iliac region. Even before this she had felt some bearing down in front. There was no alteration in the breasts at the time.

The *breasts* presented no areola. There were some small follicles around, whitish; becoming whiter on tightening sideways.

The *tumour* had enlarged, because formerly she could not feel it in the erect position; while now she could. At times it was very painful; always more so before a period. She thought she could connect the enlargement with the increased catamenial flow, and the colour was less dark than it was now.

On *external palpation,* there was dulness for four inches above the pubes. There was a projection half way between the pubes and umbilicus, of the size of an apple, quite pushing forward the abdominal parietes at this point. This was rounded, and the hand could grasp it superiorly. The dulness extended on a level with this quite to the left side. On the right side, about two inches beyond the tumour, the cæcal region was clear, as well as the two lumbar regions. All the dull parts were hard to the feel. The central projection was, however, movable upon the growth below it. It could be moved on the right side, quite near to Poupart's ligament; on the left side only half an inch. In either case, when so stretched, tight bands might be felt uniting it to the posterior growth.

*Auscultation.* On the front of the first growth, extending to the right side, there was quite a musical murmur, with a thrill, ceasing on deep inspiration. Over the projection superiorly, there was no sound; just below it, however, and over the pubes, there was distinct *tubular* souffle. There was a less loud sound on the left part of the posterior growth, and *vesicular.*

*Vaginal and Rectal Examination.* The os was small, high up behind the pubes; the lips were small. The whole pelvic cavity behind the vagina was filled by a large hard mass, smooth, somewhat lobulated; at the lower part, it was semielastic. Cystic sounding proved that the bladder was rather to the right side. The uterine sound penetrated to its normal length an anteverted uterus, and turned rather to the right side. The finger in the rectum detected the tumour between it and the vagina, in the posterior *cul-de-sac.*

The *Vaginoscope* gave no indication of murmur. An exploratory puncture made at the inferior portion gave exit to about half an ounce of serum. This proved to be so on microscopical examination. The puncture afterwards bled freely; but the bleeding was arrested by the actual cautery.

The diagnosis was, extrauterine fibrous tumour, with a pedicle attached to the posterior wall of the uterus, inferiorly infiltrated with serum.

3. *Menorrhagia* is one of the commonest symptoms of fibrous tumour of the uterus. It is often so excessive as to amount to a draining away of the patient's life, and always most alarming to the patient. The quantity of blood lost may exceed that of a miscarriage. The menstrual periods are sometimes much prolonged, extending to ten or fifteen days—sometimes with scarcely two or three days' intermission, dark clots being numerous. Sometimes they are continuous, and without intermission. The aspect of the patient in such cases is completely anæmic; and in dark subjects a yellow tint is superadded, which has often been mistaken for an indication of cancer.

As to the evidences of disease, which the kind and quantity of hæmorrhage affords, they are not very precise. French pathologists assert that, even with polypi, and not rarely so in old persons affected with fibrous tumour, hæmorrhage may be altogether absent. M. Lebert (*Bullet. Soc. Anatomique*, xxv, 366) has asserted that mucous polypi the more frequently only produce a kind of imperceptible oozing of blood, which increases with effort and exertion. Fibrous tumours, on the contrary, occasion much heavier losses of blood. M. Barth thinks age has a great deal to do with it. At the Salpêtrière, fibrous tumours are frequently found in the old women's uteri, without losses of blood. Cruveilhier states that subperitoneal fibroids do not give rise to hæmorrhage. Those projecting into the cavity of the uterus do; and all efforts of expulsion aggravate this result. A recent writer, Dr. McClintock, seems to think this difference inexplicable. So far, however, as his statement goes, out of 25 cases which occurred to him, 14 had menorrhagia, and in 11 it was absent. In 5 of these last, the tumours were distinctly ascertained to be subperitoneal or interstitial. In submucous fibrous tumours, the hæmorrhage was common.

From an analysis of 61 cases in which the locality of the fibroid was described, I obtained the following results. In 13 cases, the existence of menorrhagia was either not stated, or not known. In the remaining 48, it was as follows.

*Cases with menorrhagia*, 34; viz.: Interstitial, 1; intramural, 5; submucous, 4; intrauterine, 10; in the anterior wall, 5 (one projecting into the uterine cavity); in the posterior wall, 1 (projecting into uterine cavity); extrauterine, 1.

*Cases without menorrhagia,* 14; viz.: Interstitial, 1; intramural, 1 (this patient had never menstruated, and the Fallopian tubes were found closed after death); in the anterior wall, 4 (one had closed os, another had ceased to menstruate for two years previously; in the posterior wall, 2 (one had a tumour projecting into the uterine cavity, but the internal os was closed); extra-uterine, 5; several all over, but pregnant, 1.

So far as these facts go, they tend to verify the assertion made by Cruveilhier. But probably this is much more generally true than even my tables affirm. A tumour in the anterior or the posterior wall may or may not project into the uterine cavity, especially at a catamenial period; and yet, owing to the closure of the external os, this may not be detected during life. It is, therefore, only in cases that have died that this point can be accurately determined; and even here there may be a source of error, except in unusually marked cases, from the contraction of the vessels after death. Then, again, we may have small polypi of the mucous variety within the uterine cavity, where the uterine fibroid also present does not project into its cavity; and so the result is vitiated. I think, therefore, that, *cæteris paribus*, the result generally obtained is less exceptional than it appears.

*a.* The cause of this hæmorrhage has been differently explained. Dr. Atlee believes it to originate not from the uterus itself, but from the vessels of the membrane which covers the fibrous tumour. He believes that this view is confirmed by the results of treatment; because if, during hæmorrhage, the bistoury be passed up and very free incision be made into the most exposed portions of the tumour, a small gush of blood will follow, and the bleeding will soon cease. The cut ends of the vessels retract, and the blood soon coagulates in their mouths. Thus the veins of the investing membrane, according to his view, become at times greatly engorged, in consequence of their circulation being impeded by the muscular action of the uterus; while the arteries, by reason of their more resisting coats, continue to supply them with blood. The point of least resistance must consequently be at the os uteri, as all the other parts are compressed by the contracting uterus. The veins on the surface are thus distended. The mucous membrane is delicate, and offers but little resistance to the rupture of the vessels.

*b*. But, on the other hand, it has been satisfactorily shown by Dr. Simpson, Messrs. Brown and Nélaton, and Dr. McClintock, and the practice of a host of physician-accoucheurs proves it daily, that the mere opening of the os in a case of menorrhagia from a contained fibroid arrests the hæmorrhage. Mr. Brown's explanation is, that the division of the os and cervix uteri permits the fibres of the body of the uterus to contract upon the contained tumour, and thereby to compress the vessels and prevent hæmorrhage. Thus Dr. Atlee and Mr. Brown are at issue. It is the uterine contraction which, according to Dr. Atlee, produces, and which, according to Mr. Brown, arrests the hæmorrhage.

And here, I think, one important point has been lost sight of in this question. According as the tumour is situated low down in the cervix or high up in the uterine cavity, so a different effect may result. The same difference of position may explain the altered action of ergot in different cases. Sometimes it completely arrests the hæmorrhage; sometimes not only does it fail in this respect, but it seems rather to increase it. Contraction of the fibres of the uterine neck causes the cervix and os to dilate, and thus to enlarge its cavity. Contraction of the fibres of the body and fundus of the uterus tends to propel a contained body outwards, to diminish the uterine cavity, and dilate the cervical cavity. It is the same principle at work as is inculcated by Dr. Barnes in cases of placenta prævia; and as, in these, artificial separation of the placenta is found (if the attachment of the placenta do not extend too high) to arrest hæmorrhage, so it explains a fact commonly observed with fibrous tumours adherent at this point, that, if much manipulated, they bleed less subsequently, owing to a similar partial detachment. The reverse is the case with tumours situated within the cavity; and the following case, brought before the notice of the Edinburgh Medico-Chirurgical Society, on the 18th November last, by Dr. Matthews Duncan, is an example in point.

"Dr. Matthews Duncan showed a fibrous tumour, globular, about three inches in diameter, occupying the fundus uteri, and as if pressing on the enlarged uterine cavity. The uterus lay high in the pelvis, or rather elevated into the abdomen; and the cervix was slightly hypertrophied. The hypertrophy of the proper uterine tissue around the tumour was great, and the uterine sinuses enormous, as in pregnancy. Dr. Matthews Duncan was called to see the patient on the day of her death. She was anæmic, but fat and puffy, suffering from dyspnœa, and evidently dying; but her pulse was firm, and respiration clear all over the chest. She died in a few hours. She had suffered long from excessive monthly hæmorrhages. Examined after death by Dr. Matthews Duncan and Dr. Grainger Stewart, the tumour, as it projected into the uterine cavity, was covered by a layer of muscular and uterine tissue and a healthy layer of mucous membrane. But about the centre of the projection a little clot was observed, decolorised at its extremity. (No hæmorrhage had taken place some days before death.) This clot projected through a round opening as large as the transverse section of a large crowquill. This opening communicated with the elephantine reticulations of various sinuses, with hypertrophied uterine tissue surrounding the tumour proper."

The opinion of Dr. Matthews Duncan was, that in most cases of menorrhagia, many would, on minute investigation, be found to result from a similar condition of uterine sinuses, or of the same vessels in the uterine mucous membrane.

I think, therefore, that it is more philosophical to admit the truth to lie between the opinions of Dr. Atlee and Mr. Brown. There can be no doubt that some of these tumours become larger during a menstrual period, and subside again to their normal size when this has abated; so polypi, which cannot be felt during an interval through the os, during a period often protrude below it, and can be readily detected by the touch, and seen through a speculum. This denotes that congestion of the tumour has occurred. During gestation, also, fibrous tumours will partake of all the enlargement of the uterine organ. Such a case is recorded by Dr. Priestley (*Pathological Transactions*, vol. i.)

This patient, before conception, had several vesicular polypi, which were removed. A small nodule at this time was, however, noticed in the posterior wall. After delivery, in consequence of hæmorrhage, Dr. Priestley removed a fibroid situated at this part, about four inches in breadth by one in length. This tumour was probably the nodule, which had enlarged during gestation; and this view was confirmed by the great similitude of its structure to the walls of the gravid uterus.

And there are several cases illustrative of this same view. There is, then, hypertrophy and congestion of the tumour. This in itself is a cause of hæmorrhage from the polypus itself.

We observe the same cause and effect in the uterine lining. We all know how commonly, in cases of menorrhagia, an enlarged congested uterus is all that explains it, from whatever primary cause induced. Rokitansky has laid down the proposition, that the nearer the fibroid growths approach the uterus, and thus maintain the mucous membrane in a state of inflammation or irritation, the more palpable is the hypertrophy of the uterus. Here, therefore, is the reason why the uterine mucous membrane, as in simple hypertrophy and congestion of the organ, should give rise to menorrhagia.

The following case, however, which occurred to myself, is interesting, as I think it affords a solution of the question.

Some months ago, a lady called upon me, suffering from menorrhagia. I found a heart-shaped polypus just within the vulva, of about the size of a plover's egg, attached by a long narrow pedicle to the os uteri. I learnt that some months back the growth was much larger, and had projected more out of the vulva. It had been accidentally injured, and there had been much hæmorrhage from it. Since then it had been smaller, and the hæmorrhage less; so far explaining how, if the polypus be wounded, the hæmorrhage will be lessened, after the first gush, for a time. I removed the polypus. I found, however, the cervix intensely congested in its immediate neighbourhood; so much so that an accidental slip of the scissors gave rise to so much hæmorrhage, that I was obliged to use the actual cautery to arrest it.

The hæmorrhage after ligature of a polypus has frequently been noticed by writers to arise from neighbouring parts, and is, in my opinion, in the main due to the mucous membrane of the uterus (already very much more vascular than normal) being irritated by the foreign body. In this way, retention even of a small portion of adherent placenta, after the recovery of the patient, will produce menorrhagia. The way, therefore, in which the incision acts is chiefly by removing the pressure against the uterine mucous surface, and so diminishing the irritation.

III. The principal conditions with which fibrous tumours of the uterus may be confounded are: pregnancy, normal and extrauterine; conditions where fluids are contained within the uterine cavity, as hydrometra and hæmatometra; cancer of the uterus; retention of urine; hæmatocele; cellulitis; ovarian dropsy and fibroid disease; exostoses; encysted peritoneal dropsy, or dropsy of the Fallopian tube; fibrous tumour of the broad ligament; hydatid cysts; and tubercular and cancerous disease of the uterus, or even of the abdomen.

The limits of this lecture will, however, necessarily preclude reference to all of these, particularly as I have already incidentally referred to some of them. I shall content myself by noticing two complications of frequent occurrence, which often make the diagnosis obscure.

*Pregnancy.* Even with this condition, error in diagnosis has been made. Three cases, at least, have occurred in our London hospitals, in all of which pregnant women, supposed to have had ovarian or fibroid disease, have been operated upon, and have, unfortunately, died. It is seldom, when females have fibrous tumour, unless it be of diminutive size, that the appearance of the abdomen does not at a very early period attract their attention. It becomes larger, and they will often tell you that they feel a tumour. In most cases, especially if married and desiring children, they believe it to be pregnancy; and there are certain symptoms present at such periods which lead them to suppose so.

First and foremost are the *breasts*. Now, I do not think this symptom is sufficiently dwelt upon; but, in several cases of fibrous tumour, I have noted marked changes in these organs. They have been larger, in some cases hypertrophied; and this not only from adipose deposit, but from enlargement of the lacteal vessels. The areola has been marked, and even œdematous; the follicles enlarged; and, on milking the breast, a drop or two of a fluid, which microscopically presented all the characters of colostrum, have been obtained. Add to this, there is occasionally a *pseudo-ballottement* felt. I have detected this on two occasions. I shall best illustrate my meaning here by a case.

Eliza H., aged 37, married twenty years, had had one child and two miscarriages. The first miscarriage occurred nineteen years ago, and was followed by prolapsus, which had persisted ever since, but not to such an extent as it now manifested. The last miscarriage occurred between three and four years ago. She was generally a healthy woman. About ten weeks before I saw her, she was seized with pain in the left groin and back, very severe, so that she "could not breathe or walk". Two medical men were summoned, who applied mustard poultices and fomentations. One of the medical men in attendance stated that she was pregnant, and about to miscarry. The other said it was inflammation, etc. She kept her bed fourteen days, and her room three weeks. There was no unusual discharge *per vaginam*. She had been regular every month, the catamenial period lasting three days. The discharge was copious; and the catamenia persisted even during the time when she was suckling. After her recovery, and so soon as she was able to go out, she began to experience unusual feelings about the abdomen. These movements were exactly similar to those she had felt when pregnant before. She occasionally suffered from morning sickness, bringing up sour water. The abdomen also had been gradually enlarging. On examination of her breasts, I found that they were much enlarged; and she stated that for three weeks back she had noticed their sensible increase, and felt them unusually painful. This enlargement was not merely of adipose tissue, but of large lacteal tubes. The areola was very large, covered with follicles *of the same colour as the areola;* but those on the right side were *less developed* than those of the left side. On attempting to milk her, a few drops of a milky-looking fluid were obtained, microscopically consisting of a large abundance of milky globules, but with a deficiency of liquor lactis. The abdomen was large, and felt heavier than usual to her. There was considerable dulness over the lower part of it; but, as she was an unusually fat woman, the limits of the enlargement could not be made out at all accurately. It seemed, however, to extend to the umbilicus. There was no vaginal discharge; and connexion gave her no pain. The appearance of the external parts was peculiar. Projecting from the vulva was a fleshy-looking body without rugæ, not unlike a glans penis. There was an opening into it, which was very large, so as to admit the finger an inch. This proved to be the cervix and patent os; it was three inches long. Inclusive of the cavity, the sound penetrated five inches. The uterus was very large. Between the cervix and rectum was a large tumour, directly connected with the uterus, which seemed to fill up the pelvic cavity. This was very hard. It seemed, however, to be separated by a furrow, which to the finger closely resembled that of the sagittal suture. At any rate, it distinctly marked out the existence of two tumours. Both were hard and resistant; but one half seemed to be softer than the other.

I do not stop here to dwell upon minor points. I have mentioned enough to show that, if the sound had not been used, the case would have deceived, and might deceive a second time, a medical man. In noting carefully the condition of the breasts in similar cases, we may observe several points of difference. 1. The appearance of the breasts is unsymmetrical. This is not usual at all in pregnancy, but is very common in fibroid and ovarian disease. On one breast you may have several follicles; on the other none, or only one or two. The sizes of the follicles also differ on both sides. 2. The follicles were of the same colour as the areola, and did not become white on being tightened—*i. e.*, when the skin was pulled aside. 3. True vesicular or papuloid follicles—*i. e.*, white follicles—separate or clustered, are never found in a pure case of fibroid tumour, but are common in pregnancy. 4. The follicles, of the same colour as the areola, are most numerous near the nipple in fibroids; very few, if any, being on the outer border of the areola. The reverse is often the case in pregnancy. 5. The peculiar white honeycomb layer external to the dark areola is, I believe, never found in cases of fibrous tumours. In the above-mentioned case, we were fortunate in not making an error of diagnosis. A very remarkable case, in which this error was made, occurred in the service of M. Bouillaud (*Bulletin de la Société Anatomique*, vol. xxii, p. 178.)

A patient, aged 40, married and regular, but not of very bright intellect, was admitted. She complained of labour-pains. The abdomen was large, hard especially on the left side, where a sort of ball could be felt under the hand. The first day, the quick and rapid pulsations of the fœtal heart were supposed to have been heard; but no notice was taken at the time whether they were synchronous or not with the pulse of the woman. The *toucher* made by M. Capuron revealed an uterus low down in the pelvis; the head of the child could be felt, also the triangular fontanelle. Everybody present agreed to this diagnosis. The cervix of the uterus was completely effaced, and the os placed very high behind the symphysis. No dilatation occurred of this os for the subsequent fifteen days. On the contrary, the cervix seemed to elongate; and after a time the pains, although closely resembling labour-pains, also ceased. For several hours, however, during their prevalence, a largish quantity of yellow white matter, supposed to be the shew, continued to flow. The *toucher* was practised several times. The diagnosis was always the same—impending miscarriage. In a few days, however, fever set in; pain and œdema of the extremities supervened; and diarrhœa, with very fœtid stools. Fifty-two days after admission the patient died. At the *post mortem* examination (beside many very interesting appearances in the bladder, which was empty, but hypertrophied; the ovaries, which were enlarged to the size of an egg; the Fallopian tubes, which were full of small cysts, etc.), the uterus was found pushed to the right side; a fibroid tumour, hard and rounded, smooth, and of the size of a fœtal head of five or six months, occupied its left side. It was this tumour which during life simulated the feel of a fœtal head. The same sensation was even communicated by the *toucher* after death.

This is a remarkable case, but by no means an unique one. I have seen one of, perhaps, the most eminent accoucheurs in London mistake a fibrous ovarian tumour for a fœtus, and actually assert that he could feel the foot of the child. The *post mortem* examination revealed his mistake. The case quoted by Dr. Bradford, in his *Midwifery*, is an eminently interesting one, yet exceedingly sad in its results, as the false diagnosis led to the young lady's death.

2. The double cardiac or single cardiac sound are so seldom absent in cases where fibrous tumours assume large proportions, that their absence alone ought to make us doubt. The aorta, it is true, is sometimes heard through a child's head, or some solid part of its body, when the abdominal sounds are attentively listened to; but the movement of the part leads at once to the extinction of the sound.

3. The projecting umbilicus in pregnancy, and its puckering in cases of fibrous tumour, forms a marked diagnostic difference.

But, again, if the difficulty of diagnosis between a case of ordinary pregnancy and one of fibroid uterine tumour be not small, the differential diagnosis between *extrauterine pregnancy* and these tumours is still greater. I believe that the chief difficulty here has relation to the value of symptoms observed in the early history of the case, more especially the catamenial function. There seems to be no very precise knowledge of the normal character of this flow in extrauterine pregnancy. Some believe that it is almost always arrested. If I am not misquoting an eminent authority, Dr. F. Ramsbotham, that experienced accoucheur informed me, in conversation, that of eighteen cases which he had seen of this affection, in all there was suppression of the menses. It can scarcely be otherwise than often so.

In one of Dr. R. Lee's papers in the *Medico-Chirurgical Transactions*, on the Membrana Decidua which surrounds the ovum in cases of tubal gestation (vol. xl.), he has given us some twenty cases of extra-uterine gestation in which the decidua existed in the uterus, and in several the uterus was plugged by mucus. If so, it is difficult to understand how the catamenia could go on. The absence, in this way, of this secretion would in some measure assist us in concluding that the case was not one of fibrous tumour within the cavity or projecting into it. On the other hand, the catamenia do occur, and these are the cases in which more difficulty would be found. Not to enter further upon this point, I may allude to cases mentioned in the volumes of the *Obstetrical Transactions.*

One was narrated by Dr. Drage (vol. ii, p. 254), in which the catamenia recurred three times between the period when first seen by him in January, when she supposed herself three months gone, and the following March. At the end of June, there was considerable hæmorrhage. In July, all symptoms of pregnancy, except that the sounds of the fœtal heart were noted. In August, it ceased. From this time, she continued quite regular. The fœtus came away *per vaginam* as an abscess two years after. The other case is that related by Mr. Grace (p. 49), a case of tubal pregnancy, in which the patient had menstruated copiously before being seen by him.

She was then in collapse from rupture of the sac. Again, Dr. J. H. Davis relates a case of extrauterine gestation, in which menorrhagia had been very prevalent, and persisted for six weeks at a time. This case turned out, in the sequel, to have been a case of ovarian pregnancy.

To determine the relations of the catamenia in these cases, I have made the following analysis, and the table might be very largely extended.

Out of twenty-seven cases, the state of the catamenial function was stated in twenty-one. Of these, in seven cases, it was entirely suppressed; in seventeen, it was suppressed for periods varying from one to three months, and then followed by menorrhagia, sometimes very profuse. In two, it recurred normally after suppression, in the one case of one month, in the other of nine months; and in two, there were slight uterine losses, but not of any consequence.

The probable explanation is, that there is a stoppage so long as the decidua exists; but when this is thrown off, then menorrhagia follows, owing to the uterine excitement, and precisely as after a labour, owing to the loss of the mucous membrane. The second case I shall quote is a proof of this explanation.

In this very remarkable case, an extrauterine pregnancy was diagnosed as a case of fibroid or ovarian tumour. It is given in the *Annales de Chirurgie* (vol. xiv, p. 249), and occurred to M. Jobert de Lamballe. This woman was a multipara; had three times had symptoms of pregnancy and miscarried, ejecting, as she said, tumours *per vaginam*. The catamenia, when present, were very copious. In April 1844, they stopped, only a few drops passing away. This suppression was followed by lumbar and inguinal pains, colicky pains, and vertigo. In July, pains like labour-pains supervened. A medical man now consulted diagnosed a polypus uteri. Next month, the breasts began to enlarge as well as the abdomen. The movements of a child were felt internally by herself and could be felt externally by the hand. In February 1845, there was recurrence of labour-pains, constipation, and difficult micturition. Eight days subsequently, a kind of membrane (decidua?) came away *per vaginam,* followed by catamenia for three days. From this time, all fœtal movements ceased. The general pains and other symptoms recurred from time to time. The tumour had moved apparently from the median line to the left side. An eminent Parisian accoucheur, now consulted, diagnosed a fibroid tumour in the uterus or ovarian disease. On June 3, the catamenia recurred, and lasted six days.

On admission, the following were the symptoms observed. *By Palpation, etc.*: Large abdomen; round hemispheric tumour, more on the right than on the left side; percussion dull anteriorly, clear in the lumbar regions, extending from six *centimètres* below the xiphoid cartilage to the pubes over a space of thirty *centimètres*; circumference, seventy-five *centimètres*; no uterus to be felt, nor fluctuation; external veins not enlarged. When she was placed on her side, the tumour fell to such side, but without pain. There was no souffle. *Vaginal Examination*: The cervix lay rather to the left side, and hypertrophied, behind the pubes; flattened from before backwards. The os was open, admitting the index finger. Between the vagina and rectum, in the posterior *cul-de-sac,* a tumour filled the cavity. There was no feeling of a fœtus. M. Jobert diagnosed extrauterine pregnancy and a dead fœtus.

The question may be asked, would it be justifiable to make a puncture with an exploratory needle in a case of dubious pregnancy, in the hope of being able to obtain a small quantity of amniotic fluid, and thus diagnosing the correct nature of the case? It seems hazardous to answer this question. Yet it would appear wiser to do so, than to make an exploratory incision and cut down upon the pregnant uterus, as has now been done some three or four times, and always with a fatal result. The opinion of Scarpa might be quoted, who dreaded no evil effects from paracentesis abdominis in pregnancy, and who believed the gravid uterus might be safely punctured, and supported his opinion by cases related in the writings of Campa, Brown, Sarquis, and Reiscard. (*Cycl. of Prac. Med.*, iv, p. 385.) In Dr. Hall Davis's case of ovarian pregnancy, the woman was tapped when pregnant, and lived twenty-six days afterwards. So did one of M. Rostan's. In these cases, however, an ordinary trocar was used. A very small opening might not have had the same result; and, by affording a smaller quantity of fluid for examination, might have cleared up the difficulty.

The subject of *hydrometra* and *hœmatometra* need scarcely detain us. The stoppage of the catamenia and fluctuation present would in themselves show that the disease was not of a fibroid character; so, also, in the case of retention of urine. The introduction of a catheter would remove the difficulty in the diagnosis; *and this should always be done in all doubtful cases.*

*Ovarian Diseases.* It is with *ovarian* cases that the diagnosis is often very difficult. The differential symptoms on which most reliance is usually placed are the following. Ovarian tumours generally arise from one side; fluctuation is felt in them; the shape of the tumour is symmetrical and pyriform; the hand can be passed between the parietes of the abdomen low down and the tumour; and the uterus has a shorter cavity. Now, I believe that every one of these symptoms may be present, and the tumour after all prove to be a fibroid.

1. The ovarian tumour *grows from one side.* This may be true in many instances; but fibrous tumours are not unusally found to begin on one side. I have met several such, more particularly where they contain fluid or are situated in the latter walls. Moreover, in the case of pedunculated tumours and pelvian bodies, to which I have before referred, these tumours are commonly found on one side.

2. *Fluctuation* may also be absent in ovarian disease. Though the tumour be ovarian, it may be fibrous. Such a case occurred to Dr. Murphy; and was successfully operated upon by Mr. Erichsen.

Two cases where this occurred are also mentioned by M. Lièegeois. (*Bull. Soc. An.*, xxix, pp. 140-41.) In the first, there was found after death a large tumour of the size of a fist in each ovary, of a fibrous nature. Microscopically, both exhibited fibro-plastic characters. In the second case, there was a large fibrous tumour weighing eight pounds. Another case is mentioned by M. Icery (*Ib.*, xxviii, p. 135), where a large uterine fibroid co-existed with fibroids of both ovaries.

But we may have a sensation of fluctuation in a fibroid produced by four causes: *a.* A comparatively soft, fleshy, flabby condition, quite irrespective of fluid; *b.* Unusual vascularity; *c.* The presence of œdema; *d.* Uterine false or real cysts, as before seen.

*a.* The following is an example of the first variety, where an extrauterine fibroid, and withal solid, fluctuated, and was, besides, diagnosed to be ovarian. It is related by M. Bourcy. (*Bulletin Soc. Anat.*, xxx, p. 160.)

A woman, aged 45, was admitted into the Hôpital Cochin, under M. Gosselin. She had had children, and was in good health up to two years back. On admission, the symptoms were, tumefaction and pain of the abdomen since the cessation of the catamenia ten or twelve months previously. The pains had become greatly worse during the last two months; they were very severe, like labour-pains. Micturition and defæcation were very difficult. She had kept her bed two months, and was only able to stand and walk by using a belt. Abdominal palpation detected a hard, non-fluctuating tumour of the size of a fœtal head, bilobed, larger on the right side. There was an indolent hard tumour in the right breast. A vaginal examination revealed the tumour at the bottom of the vagina. No cervix was to be found (which led to the belief that the tumour was external to the uterus). This patient, after suffering agonising pains, only relieved by opium, and losing flesh rapidly, died two months after admission.

A *post mortem* examination was made twenty-four hours after death. Palpation made through the abdomen revealed fluctuation. On opening it, the intestines were found to be pushed upwards and backwards, and were contracted in diameter. A large fibrous tumour, rounded, much larger than an adult head, was situated behind the uterus, between it and the rectum, which it compressed behind. The tumour was encysted; it might have been enucleated. The cyst envelope was hard, thick, fibrous, and closely attached to the posterior part of the uterus. The tumour itself, when cut, appeared marbled, here and there tinged with ecchymosis, varying in consistence, friable; percussion of it produced tremblings (*tremblotements*) in the mass. The union with the uterus was remarkable. It was attached firmly to the tumour, and on the right side. The cervix was thinned and elongated. The body, the curvature of which was preserved, was normal, firmly adherent to the enveloping membrane. On a level with the union of this membrane and the posterior face of the uterus, there was a notable thickening, a hard tissue, fatty, and intermixed with some osteo-calcareous productions. The uterine appendages were healthy. The kidneys were large, and the ureters dilated, by reason of the pressure of the tumour, to the size of the small intestine.

A more remarkable case still was that of Kœberle's.

It was one of enormous tumour, weighing above sixty-six pounds, which, before the operation, was, by himself as well as others, found to fluctuate. "The sensation of the wave of liquid seemed so evident, that no one could doubt at all that fluid existed in it. This fluctuation was most evident on the left side, and gentle taps could be transmitted through it very clearly to twenty, and even thirty, *centimètres*." On tapping before the operation, only blood exuded. During the operation, when the abdominal parietes were cut through and the tumour exposed, "at the slightest tap of the finger, the tumour undulated as a mass of jelly, or like a bladder incompletely filled with fluid"; and yet this tumour turned out to be a *solid* fibrous tumour.

In both these instances, fluctuation was so manifest during life, that a mistake was next to inevitable. The great test, however, of the transmission of the aortic sounds, was not tried.

*b*. The second variety of deceptive fluctuation, from excessive vascularity, is more common; and I have met several examples of it. They are eminently the vascular fibroids. Mr. Brown lately mentioned an example of this kind in his lectures, where a fibroid was complicated by pregnancy; and, no doubt, the false fluctuation here felt was due to this cause. In another case, also of Mr. Brown's, the particulars of which he has kindly forwarded to me, this same feeling of fluctuation existed; and here, also, an exploratory incision was made. When the tumour was cut into, it bled profusely, and then was found to be made up of a number of engorged vessels. The patient ultimately did well. When so experienced an operator as Mr. Brown is deceived, you may imagine the difficulty of a correct diagnosis in these cases. Yet I think they may often be made out. The souffle, amounting almost to a splenic murmur, sometimes accompanied by a thrill in them, betrays their vascularity. An exploratory puncture will bleed very freely, and often require the actual cautery to be applied to arrest its flow; but if it be small, and made through the vagina, it is not attended, as I have seen, with any objectionable results.

I saw a case of the same kind, which Dr. Greenhalgh kindly shewed me at St. Bartholomew's, in which also this pseudo-fluctuation existed, and where an exploratory puncture was followed by excessive bleeding, which was checked only by the actual cautery; and I have met other cases.

*c.* The third cause of fluctuation is œdema of fibrous tumours, and it is a symptom which is far more common than is generally believed. I have met with it several times. Once or twice it has appeared to me to have been induced in a previously solid tumour by the very examinations made to diagnose its nature. Occasionally, it has originated from a blow.

In these instances, although fluctuation may be absent, the feel is so elastic that you cannot believe it to be solid. And what adds to the difficulty is, that the single or double cardiac sounds before referred to may be destroyed. Here the previous history, and it may be an exploratory puncture, is the best means of diagnosis.

*d.* It is, however, with fibroids containing cysts, or fibro-cystic tumours, that the greater difficulty lies. The following example, given by M. Holaire (*Bull. Soc. Anat.*, xxvii, p. 319), and which occurred to M. Rostan, is interesting in illustrating this error of diagnosis.

A woman, aged 46, two years ago, began to enlarge in the abdomen. The tumour began on the right side. At first slow in development, its growth gradually became more active, and she was admitted into the hospital. Rostan diagnosed ovarian disease, and tapped her in the right side. A yellowish urine-coloured fluid came away. The belly now became straight again. No tumour could be felt by palpation. She was much relieved, and no bad consequences followed this puncture. The abdomen was found to enlarge again. She was tapped again, with the same relief. But this was only temporary; for soon the abdomen began again to enlarge, and a tumour could now be felt, which, in a short time, grew to the size of a child's head. Digestive troubles followed. Icterus made its appearance, and marasmus. Finally, she died.

The *post mortem* examination revealed adhesions in the abdomen and partial peritonitis. The broad ligaments, ovaries, and Fallopian tubes, were all healthy. It was the uterus which was the seat of several encysted multilocular tumours, varying from the size of an orange to that of eggs and smaller still, in various degrees of development. There was no cancerous juice. Microscopically, M. Verneuil discovered only fibrous tissue of new formation. It was, therefore, most probably a recurrent fibroid.

I have already alluded to several of these cases in speaking of the softening of fibroids by cystic transformation. The great majority of these were mistaken for ovarian disease, and treated accordingly. I myself have known two instances, at least, where very large fibroids contained much fluid. The diagnosis in the one was correct; that in the second, altogether at fault.

It is in cases like these that the points to which I have before referred, in the necessity of knowing fully the previous history and making a most minute examination, becomes so important. It is here, also, that, short of an exploratory incision, it may be wise to make use of an exploratory needle. The remarkable epithelial bodies and compound cells found in ovarian cysts, and the absence of fibrous *débris*, will at once indicate that we have to do with an ovarian cyst and not a fibroid. This is an important point, and one which I believe has not been before sufficiently dwelt upon. More inquiries, microscopical as well as chemical, are needed to enable us accurately to tell the difference between fluid contained in a fibroid and that contained in an ovarian tumour. Years ago, Dr. Hughes Bennett made out the diagnosis. In a case submitted to him, he was able to say that the tumour was fibroid in character.

There are two other symptoms upon which I wish to dwell, in connexion with the diagnosis of ovarian disease and fibroids. One is the state of the catamenial function; the other, referred to by Dr. M'Clintock, is derived from the position of the tumour and the inner wall of the anterior part of the abdomen. The disturbance of the catamenial function is not believed to afford much indication in the diagnosis of ovarian dropsy as opposed to the presence of fibroids. Mr. Brown says:

> "That we may have irregularity of the menses, an excessive flow, or dysmenorrhœa; but suppression is rare. Nevertheless, we may not be able to discover any such catamenial derangements; and menstruation may have been regular throughout the disease, or become so after its definite establishment. Likewise, suppression attends the development of cancerous disease; and is common where a cyst rapidly developes, or where there has been a large drain of its serous contents. Kiwisch says the arrest of menstru-

ation by the latter causes mentioned, is more frequent in compound than in simple cystic disease; and that, as a symptom, it is not without its value in diagnosis and prognosis." (Brown on *Ovarian Dropsy*, p. 29.)

In bringing these opinions to the statistical test, I obtained the following results. In 150 cases, selected from my own experience and from that of others, and including several unpublished cases kindly furnished to me by Dr. Greenhalgh, I have noted the state of the catamenial function.

In 64, or 42.6 per cent., it was regular. In 44, or 36.6 per cent., it was arrested; but this number is too high; for in seven only was the suppression directly traceable to the development of the tumour. In 17 again, the women were about 45, at which age the catamenia often cease normally.

In 14, or 9.2 per cent., menorrhagia or profuse menstruation existed.

In 16, the catamenia were irregular; but 3 were about 45 years of age, and 4 had always had irregular menstruation; the percentage under this head would, therefore, be about 8 per cent.

3 women had never menstruated; 2 had dysmenorrhœa; and 9 had scanty menstruation.

In most cases, therefore, if we exclude extrauterine fibroids, the differences in this function are sufficiently broad materially to exclude error. The state of menorrhagia is normally that of fibroids; quite exceptionally that in ovarian disease.

Dr. M'Clintock states that, where we have an uterine tumour, the hand, say in its ulnar edge, cannot be passed down but to a very small extent between the internal abdominal wall and the tumour. In ovarian tumours, the ulnar edge of the hand can be passed deeply between them. However unpleasant it is to differ from so high an authority, I am compelled to say that my experience cannot confirm this statement. This is particularly the case in those examples where the uterus is lengthened by the fibrous growth and the bladder pushed up with it. Wherever, also, in an ovarian case, or even in an ordinary abdominal tumour, there are adhesions, the test fails. But, even without such adhesions, and in ovarian tumours, it very frequently cannot be done.

In conclusion, I must say that there are a class of cases which are still more puzzling; I mean those examples of fibroid coexisting with ovarian disease and solid ovarian tumours. I have collected notes of several such cases.

The case before quoted of M. Bouchet (*Bull. Soc. An.*, xxviii, p. 10) was an instance of a fibroid of the uterus with ovarian cysts. M. Jury's case (*ib.*, p. 135) was also an example of fibroids in both uterus and ovaries. M. Jules Simm (*ib.*, 2nde liv., iii, p. 69) has recorded a case of fibrous tumour complicated with hernia and with ovarian cysts. This patient was operated upon for hernia. An artificial anus was the result, of which, with gangrene of the parts, the patient died.

The *post mortem* examination revealed an uterus studded on its whole surface with fibrous tumours, from the size of a lentil to that of an apple. One of these was encysted, and contained an unctuous yellow liquid. The uterine cavity was the shape of the letter S. The two ovaries were replaced by two cysts of the size of an egg. Another case is mentioned by M. Bouchet (*ib.*, xxix, p. 136), in which two enormous fibroids, one on each side of the uterus, larger than the fists, interparietal, existed, and the right ovary contained a cyst as large as the two other tumours conjoined.

Without question, the diagnosis in such cases is very difficult; nor have I anything now to advance on this point.

# LECTURE III.

## THE TREATMENT OF FIBROUS TUMOURS.

Mr. President and Gentlemen,—The treatment of uterine fibrous tumours forms the subject of our consideration to-night; and I shall speak, first, of the therapeutical measures which have been recommended; and, secondly, of the surgical appliances which have been found most efficacious.

I. Therapeutical Remedies. Several remedies have been recommended; but of these, the only three to which I shall refer are mercury, iodine (and its analogue bromine), and the liquor calcii chloridi.

From the time of Sir A. Cooper down to the present day, the discutive properties of *mercury* have been well known in cases of internal enlargement, and especially in cases of uterine disease. Combined with local depletion, I know of no more efficient remedy in arrested involution of the impregnated uterus, and in hypertrophy of this organ. But I have seen some cases of uterine fibroid where I think the enlargement has diminished under its use. I do not say that it has entirely disappeared. In mere thickening and hypertrophy, it is without doubt very efficient.

On the use of *iodine* and *iodide of potassium*, the writings of Dr. Ashwell are so well known and explicit, that incidental allusion only is required. He gave iodine internally, and applied an iodine ointment locally to the cervix. The resolution was sometimes effected in from sixteen to eighteen weeks. This was especially the case with cervical tumours. In hard tumours of the walls, however, he admits that the remedy, as a discutient, was of no avail; at most, it prevented only further increase. Dr. Simpson, on the other hand, recommends the bromide of potassium. In my hands, I must confess, that these remedies have not proved so useful as the bichloride of mercury.

More lately, Dr. M'Clintock has recommended the use of the *liquor calcii chloridi* (*Dublin Pharmacopœia*); but I have no experience in its use. In one case only, I gave it to the extent of eighty drops three times a day for four months. It seemed to give the patient comfort, and a slight relief to her symptoms; but the tumour did not become sensibly smaller.

It is precisely the absorption, however, of fibroids which are imbedded in the uterine walls, which we have been chiefly discussing; and these tumours are exactly those upon which those remedies are least operative.

*Hæmorrhage.* The symptom which seems to give rise to the greatest inconvenience in these cases, and calls most for treatment, is hæmorrhage. If this depend on hepatic congestion, or be accompanied with it, I believe no remedy is so efficient as mercury. In these cases, also, oxide of silver, in doses of one to three grains with half a grain of extract of Indian hemp, has often acted very decidedly; although, in some instances, the oxide of silver has appeared to purge. In other instances, no such operation has been observed; but the hæmorrhage has ceased. Sulphuric acid and gallic acid, also, as most of us have doubtless observed, are powerful remedies in arresting the hæmorrhage. Without doubt, however, turpentine is the surest remedy, if the patient's stomach can bear it. Better still is a mixture of dilute sulphuric acid and turpentine; but the women that can bear to take this atrocious compound are very few and far between. Ten minims of oil of turpentine in a mixture three times a day has sufficed to arrest the flow of blood in two or three days. Sometimes, however, all these remedies fail; and more energetic measures are demanded, and these are chiefly *local* in character.

There are three ways in which, locally or by manual operation, the hæmorrhage may be arrested—at least, for the time. These are: 1, injection; 2, cutting open the internal os; 3, directly cutting upon that part of the mucous membrane which covers the fibroid projecting into the uterine cavity. I do not, of course, allude here to polypi.

1. *Injections.* It is unnecessary that I should refer

to this method of arrest at present, as I have already published my views on this subject at length, in a paper which you may all read, in the *Obstetrical Transactions.* I will only add a few words, in justice to a colleague of mine, Dr. Savage, whose name, although I gave him due credit in that paper for the discovery, has been overlooked. The scraping of the uterus by an uterine gouge was a French innovation. The injection with tincture of iodine, *after* dilatation by a sponge-tent, was Dr. Savage's discovery. The previous dilatation allows the escape of the fluid subsequently injected; and then those acute pains, which occasionally determine peritonitis when the uterus is injected *without* previous dilatation, are avoided. Dr. Savage prefers to inject iodine; that is, the strong Edinburgh solution undiluted. I like the tincture of sesquichloride of iron. I have never known an instance where, under this treatment, the hæmorrhage has not ceased for the time; I mean in fibroids. Of course, in ordinary cases of menorrhagia, the result is permanent.

I may mention two cases of fibroid tumour. One was a patient of Dr. Savage's, whom he transferred to me. She had an enormous uterine fibroid. At every monthly period the catamenial flow was profuse. The plan adopted was to inject the cavity, *after* dilatation by a sponge-tent, after the first or second day of the flow. It was always arrested, and never recurred till the next period, when it was again arrested in the same manner. The patient had time thus to rally and gain strength, and left the hospital much relieved.

The other case was remarkable in more ways than one. It was a case of fibroid and cancer combined, occurring in a young woman aged about 28. She came into the hospital completely exsanguine—with all the marked uncomfortable symptoms of anæmia. The tumour was very large, and extended above the umbilicus. The hæmorrhage was copious, amounting to flooding at every period. The odour of the blood was in no way cancerous. This patient had *sponge-tents first used;* and in the exploration by the index finger, these fungoid growths here shewn were made out, but supposed to be merely mucous polypi. Portions of these were scraped away by the gouge, and she was consequently injected with tincture of sesquichloride of iron. The hæmorrhage was arrested instantaneously; and it was quite pleasant to see how the patient rallied during the month, getting flesh and colour and walking about, in fact, able once more to enjoy life. This treatment was repeated three or four times, and she was greatly better. A fifth time the menstrual period recurred; and I was thinking of injecting her the next day. On my arrival, I found her in a state of high fever, with abdominal tenderness. It proved to be acute peritonitis. It was fortunate for me, that I had not injected her now, else I should have concluded that the peritonitis had been due to the injection. The *post mortem* examination revealed the state of things you see represented in this drawing. The tumour was fibrous, with cancerous masses here and there.

2. Another means of arresting the hæmorrhage is by *incising the os.* I do not stop here to inquire as to who was the discoverer of this mode of procedure, and as to whether the merit is to be claimed by America, England, Ireland, or France. Of its practical value, I am convinced. It is a plan we have carried on at least for two years at the Samaritan

Hospital. I explained the *modus operandi* of this incision in my second lecture.

3. Equally effective is Dr. Atlee's plan of *incising the mucous membrane* over a tumour projecting into the cavity. To the *modus operandi* in this case, I also referred in my previous lectures; and, therefore, I need not detain you any longer upon this point.

*Treatment by Electricity.* It is now many years since I was consulted by a lady for what appeared to be a fibrous growth of the breast.

It was a large tumour, of about the size of a turkey's egg, very hard, resistant, and producing some sickness on pressure. It gave rise to considerable anxiety at the time; more especially as the mother had just died of cancer, and an aunt had also succumbed to the same affection. Reflecting on the fact that, if in an ordinary galvanic battery a quantity of fresh meat is placed in connection with the positive pole, this rapidly putrefies, and believing that this fact, which I noticed years ago, was explanatory of the putrefaction of meat even in very cold countries at periods when the atmosphere is surcharged with positive electricity; it occurred to me that, if I could place this tumour in the same position, I should lead to its oxidation or decomposition, and so cure my patient. I did so. A zinc plate was moulded to the affected breast; a copper one to the healthy one. Interposed between the breast and plate, in both cases, was a piece of calico dipped in vinegar. In six weeks the cure was complete.

I was not so successful in a case of fibro-cystic disease. Here the disease made its progress apparently unaffected, and I was compelled at last to amputate the breast. The disease was radically cured.

Another case in which I tried electricity was one of fibroid of the uterus. C. B., aged 44, was admitted under my care, at first for a few days, subsequently for a longer period. (My notes of her case on first admission are meagre.) The patient was a rickety diminutive subject. She had been married nineteen years, but was childless. She had been usually regular till within the last twelve months, since which period she had suffered from dysmenorrhœa, and the catamenia had occurred only three times. Then they were copious, lasting four or five days, being very dark and clotty. They last appeared three weeks before admission. She first noticed the tumour eighteen months previously, in the iliac region of the right side. This was free from pain. She now complained of a great deal of pelvic pain and discomfort, and her motions were with difficulty passed. On vaginal examination, the os was found to be small, and the cervix prolonged. On the right side, in the position of the ovary, but lower down, was a hard tumour, which pushed the womb to the left side, and was seemingly attached to it, moving the latter slightly when moved itself. The movement, however, in the tumour itself, was limited. It filled the entire pelvic cavity, and extended above the pelvis. Pressure made above was felt in the vagina on the finger. The tumour was intensely hard except at one point. Here it was doubtful if there were not obscure fluctuation.

She was re-admitted December 11th, 1853. Since her former admission, the patient had been taking bichloride of mercury, except for about a month when she caught cold. The following points were now made out. The sound penetrated only three-fourths of an inch. Two tumours could now be felt in the abdomen; one to the left side and towards the median line, and projecting about an inch above the pubes; the other tumour, much larger and thicker, projecting two or three inches above the pubes, and placed more towards the right side. Pressure from above was responded upon the index finger in the vagina. The pelvis, as before, was occupied by a large tumour, which seemed to be made up of the entire uterus uniformly enlarged. The os was very small, looking backwards and downwards.

An attempt was made to dilate the os by spongetents. This failed. Subsequently, assisted by my friend Dr. Althaus, I passed a strong electrical current of high intensity through the tumour, placing as the positive pole an iron sound covered with gutta percha except at its distal end within the os as far as it could go; and the negative pole at the back opposite the sacrum. This was continued unremittingly for two hours. The effect was to cause the os to dilate a very little. It gave rise to a great deal of pain in the back, described by her as that of a large pin sticking into her. This was at once relieved on disconnecting the pole. The treatment was persisted in for four days. No greater effect upon the os was produced. The electricity seemed to give her pain subsequently to its removal. The catamenia appeared on January 1st, when the treatment was suspended, to be resumed again on the 4th. No effect appeared to have been produced upon the tumour by the electricity up to the 17th, when she left the hospital. An ulcerated spot had appeared on the back; no doubt, induced by the current; and a similar spot upon the os uteri and part of the cervix. This was more to be regretted, as the latter gave rise to as severe a gonorrhœa in the husband as I ever saw. In the long run, however, it seemed to do good. The tumour, in the course of a year, was become about as small as the fist, and all unpleasant sensations in connection with it had disappeared. I have seen this patient lately. The tumour is not now to be felt.

The employment of electricity to act upon fibroids is comparatively new. In future experiments, I purpose applying it by means of wires in the centre of the tumour; in this way, destroying and solidifying all the blood about the needles, without contact with the external air. I hope thus to succeed in exciting in it the process of absorption. The following remarks by Dr. Althaus are interesting, as exemplifying the absorptive action of electricity in cases of glandular tumours.

"Faradisation and galvanisation may be usefully employed for certain tumours, especially of the glandular kind, and some forms of struma; and are chiefly to be recommended where surgical operations are impracticable, on account of the seat of the tumour, or where the patient is averse to such operations. A striking case of this kind occurred a short time ago in the practice of Professor Langenbeck and Dr. Meyer of Berlin. The patient suffered from a hard glandular tumour, as large as the head of an adult, and lodged between the head and the right shoulder, filling up the space between the lower jaw, the mastoid process, and the linea semicircularis inferior of the occipital bone, and extending backwards in the direction of the vertebral column, which was dislodged towards the left side. The circumference of the left side of the neck was only six inches, while that of the right side was no less than fourteen. After fifty-six applications of the induced current, the tumour was reduced to one-half of its previous size, and by further treatment its bulk was still more diminished. In such cases, each operation should last for about an hour, and the treatment must be persevered in for a considerable time if beneficial results are to be obtained. Galvanisation seems, in the treatment of these affections, equally valuable as Faradisation."

II. SURGICAL TREATMENT. The surgical treatment of fibrous tumours is one which requires greater consideration, and to which we must have recourse in many cases, as the tumours, sometimes, if left to themselves, prove fatal. This may be of two kinds: 1. Enucleation of the tumour; 2. Removal of the tumour by Gastrotomy.

1. *Enucleation.* My labours on this point have been considerably lightened by the papers of Mr. Hutchinson, published in the *Medical Times and Gazette* for 1857, regarding which it is difficult to state to which part of the subject so graphically described by him the greatest merit is due; whether to the collection of cases, and the succinct manner in which he has detailed them, or to the practical emphatic conclusions to which he has attained. His results were founded upon thirty-nine cases, in which enucleation was practised. To these, I have added twenty-one cases. It is upon these sixty cases that my observations will be made.

The operation for the removal *per vaginam* of fibrous tumours will be best considered under two heads: 1. Primary enucleation, where the enucleation has been completed at the time, or within a day or two; 2. Enucleation by inducing gangrene—*i. e.*, when part has only been performed, and death of the tumour has been induced, which thus comes away with sloughing. I shall follow the same order, only I shall speak of incision of the os and tumour as a means of cure, and removal by gastrotomy, as a third division.

*Primary Enucleation.* Mr. Hutchinson enumerates eighteen cases under this head. Of these, twelve recovered, or 66.7 per cent. In nine cases out of twenty which I have added, primary enucleation was performed, and followed by recovery in all but two. The principal rules laid down by Mr. Hutchinson are: 1. The tumour must be well depressed into the pelvis by an assistant. 2. The first incisions must be very free, and pass deeply down into the tumour; thus not only completely dividing the capsule, but facilitating its bisection, should that afterwards be found requisite. 3. The opened capsule must be separated by the fingers, or, if needful, by blunt-pointed scissors, the finger being used as a director. Strong and large vulsella, with midwifery forceps, should be at hand; to be used for traction, if necessary. 4. The grand object is to draw down, after separation of the tumour, the uterus inverted with the tumour to the external parts, or as near as possible to them, which facilitates the operation. 5. After eversion has been completed, an examination should be made with the finger, also *per rectum*, etc., so as not to cut through an inverted pouch of peritoneum in separating the final attachments of the uterine tumour. 6. The uterus is then returned. Ice, ergot, stimuli, etc., are to be given as indicated by the symptoms.

The views here epitomised are so very much in accordance with common sense and sound surgery that I do not wish as a whole to controvert them. To one point only of these I would take exception. I do not believe that the grand object is to draw down the inverted uterus after separating the tumour, so as to bring the tumour as near as possible to the external parts, although this renders the operation easier.

It cannot be doubted that simple traction of the uterus will often suffice to determine inflammation in and about the peritoneum around the organ. In the fatal cases of enucleation, death seems to have been due to phlebitis or peritonitis. Upon this practical point we can learn a lesson from the experience of practitioners in the removal of *polypi*, as a rule, a far easier operation if the uterus be pulled down.

One case is mentioned by M. Gaubrie (*Bull. de la Soc. Anat.*, vol. xvii, p. 209) where a polypus, supposed to be attached to the cervix (but found after death to be attached to the fundus), was pulled down forcibly. The pedicle yielded and it came away; yet that patient died from latent peritonitis. After death, the uterus was found healthy; but pus was found in the pelvis. Another case is mentioned by M. Demeaux (*Ibid.*, vol. xviii, p. 41) in which an enormous polypoid growth filled the cavity of the uterus. It was pulled down to the vulva, removed, and the parts replaced. There was no bleeding. Peritonitis followed, and death two days subsequently. The *post mortem* examination revealed pus in the pelvic cavity. No uterus could be found in the pelvis; but a puckering and sunken-in portion, within which the ovaries and a vaginal tumour, which was the inverted uterus, were found. This inversion, it is true, was supposed to have been the result of the weighty polypoid growth before traction had been employed. Yet death from peritonitis was the result of the operation. A more remarkable case, however, is quoted by M. Pigné (*ibid.*, vol. xiv, p. 11). This was a polypus as large as a fist, which was taken from a dead woman. During life an attempt was made to remove it; but the finger being first introduced within the rectum, no uterus could be felt. All extraction was now stopped, on the supposition that the tumour was an inverted uterus. Peritonitis and death followed. The *post mortem* examination revealed a pediculated polypus within a very small and anteverted uterus. No injury whatever of the peritoneum had taken place. The traction alone produced the peritonitis. Dr. Greenhalgh has informed me of a case which he saw at Würzburg, where the mere traction of the uterus downwards produced peritonitis and death.

In the recorded cases of enucleation, where traction is mentioned particularly as having been made, the results may be referred to two heads; viz., where the uterus or the tumour was pulled down by fingers, a string, or other violent means; and, secondly, where this was done by forceps. The result in the two cases is very different. Of eight cases, in all but two of which the operation was that of primary enucleation—one being secondary, the other failing altogether—in three, the uterus was for the time completely inverted. Three cases died; in one of these, eversion had occurred; in another, forcible attempts were made to pull down the uterus, which failed.

In eight other cases, in all of which but one (where the operation failed, although the tumour sloughed away afterwards) the operation was primary enucleation, and the forceps were used, no deaths occurred.

In two, the uterus was inverted. In two cases, it was the uterus which is stated to have been pulled down by the forceps. In the remaining six, it was the tumour which was so drawn down. All did well, except one patient, who had phlegmasia, and whose convalescence was not established till two months. All the tumours, however, where it is stated, were small; except in the patient who had phlegmasia, where it was large; and in another, where the tumour weighed eighteen ounces, and the diameters were four inches by six.

Was this difference in the result due to the better regulated traction which can be exerted by a forceps, or to the better direction given by it? Probably, where the forceps were used, the tumours were low down in the true pelvis, and so easily included in them. Short forceps were used in every case; and, therefore, it would seem that the traction was less forcible. Whenever these were used, the results were more satisfactory. The fact is indubitable. Still, it seems difficult to say to what cause the occurrence of peritonitis is due, where it so occurs; when we know that in very many other cases, where traction is employed, it does not occur.

In explanation, I have but three suggestions to make. In cases of retroversion, I have never seen peritonitis follow traction, to restore the organ to a straight direction, so as to allow the admission of the sound. Is it because in these cases the peritoneum is no longer in its normal state, already changed by the very unusual disturbances to which it has for some time past been subject? This is certainly true in many cases of ovariotomy, where numerous adhesions exist. Secondly, peritonitis, and accidents of like nature, are rare, if our patients have been well purged and prepared by remedies before operation; a precaution which, in the case of polypoid growths, is often neglected. Will this explain the difference? Thirdly, there is doubtless, in some cases, idiosyncracy and a predisposition to peritonitis.

The practical conclusion, at any rate, to be deduced is, that the very traction which is necessary in these cases is often in itself a source of danger and a cause of death; and therefore, if possible, it should be avoided.

*Enucleation by the Induction of Gangrene*, or *Secondary Enucleation*, as it is called, is a much more tedious operation. Out of fifteen cases mentioned by Mr. Hutchinson, nine recovered, or 60 per cent.; and six died, or 40 per cent. In my table, of ten cases, in one the result was not stated. Of the remaining nine, four died, or 44.4 per cent.; and five recovered, or 55.6 per cent.

Mr. Hutchinson has concluded that, if other unpublished cases were taken into the account, the results of the two modes of operation would be identical. The above figures, however, so far as they go, prove that enucleation by the induction of gangrene is positively less fatal than primary enucleation. Is this due to the traction which is employed being less marked?

The modes in which this operation has been practised have been various. The French method consists in using the knife, in most cases without the use of ergot at all. Dr. Atlee's consists in using, in the first place, ergot in repeated doses, so as to influence the uterus to contract and forcibly eject the tumour. Then the incision is made through the capsule, the ergot being continued, and the tumour gradually separated from the cyst by the finger, cutting, by the knife or scissors, any adhesions which may interfere with such separation. This is continued from time to time; the tumour in the meanwhile sphacelates and comes out by pieces, until the whole has come away, or what remains is capable of enucleation and removal. There can be no doubt that Dr. Atlee's method is an improvement upon that of the French school. It provides a *vis a tergo* to assist the operator.

Again, Dr. Atlee does not limit his operation of enucleation to the *uterus*. In several cases where, from the size of the tumour or its position low down in the pelvis, while the uterus is high up or difficult to reach, and in cases of extrauterine fibroid, which occupies similarly a true pelvic position, he does not hesitate to cut right through the *vagina*, so enucleating the tumour. This he performed in several cases; and, so far as I know, he was the first to attempt this mode of procedure.

In estimating the degree of mortality due to enucleation by the induction of gangrene, we learn again a lesson from what occurs in some cases of polypi, which are tied and allowed to slough away.

The experience of Drs. Robert Lee and McClintock gives the following numerical results of cases in which the ligature was applied.

| | Cases. | Deaths. | Per cent. |
|---|---|---|---|
| Dr. Robert Lee | 20 | 9 | 45 |
| Dr. McClintock | 10 | 3 | 30 |
| | 30 | 12 | 40 |

And, no doubt, with a large sloughing mass in the vagina, exposed to the air and putrefaction, the absorption of putrid pus is a natural result. The same is true with regard to the fibroid within its cyst, only to a greater degree. In the case of the polypus, we have merely mucous membrane, which is our absorptive surface. In the case of the enucleated fibroid, we have a raw ulcerated surface of the cyst, that part which is the vascular part of the tumour, and therefore eminently absorptive, ready to take into the system the vitiated pus. The surprise is that, in such cases, recovery ever occurs. Fortunately, the *vis medicatrix naturæ* is often powerful enough to accomplish it. It is for this reason that I think Mr. Brown overrates the beneficial results of his modification in the operation, in first incising the os and allowing it to heal before he proceeds to gouging or enucleation. It is of use, doubtless, as it removes one additional source of absorption; but others remain.

The practical lesson which is taught by these remarks, is the necessity of frequent injections and washings with disinfectants, and obviating the production and long contiguity with ulcerated surfaces of effete and putrid matters.

*Enucleation by Gouging*, and inducing gangrene subsequently, is a modification of Mr. Brown's.

The instrument which he uses I now show you. It has already been exhibited before this Society, and, therefore, need scarcely detain us long. It was originally devised by Mr. Philip Harper. It consists of a hollow tube of steel with cutting knives. Contained in this tube is a hook, which can be pushed up by a spring, and thus grasps the tumour, whilst circular knives are carried through by means of a screw. In this way, a piece can be actually cut out of a tumour much in the same way as the central piece is cored out of an apple.

In the *Obstetrical Transactions*, Mr. Brown has published several cases exemplifying this mode of treatment. I may remark, however, that it is restricted by him to *intrauterine fibrous tumours of the non-pedunculated form*, growing from the inside of the uterus from a broad base. Mr. Brown has given us four cases in which he gouged in this manner. In three, a cure followed; but in one, the operation led to a fatal result. This death he attributes to the absorption of putrid pus through the cut edges of the cervix, which was previously laid open to expose the contained tumours. Hence, at present, his mode is in the first place to lay open the cervix, and to wait two or three days, or longer, till this has healed, before he proceeds to gouge.

The method pursued after the gouging, is to plug up the hole thus made by oiled lint, to arrest hæmorrhage and provoke sloughing of the tumour.

In three of his published cases, however, the tumours were not gouged. In one, the tumour was broken up by a pair of sharp scissors.

I may say that, through the kindness of Mr. Brown, (who furnished me with the notes of several of his cases, even hitherto unpublished), I know of two more examples in which, after the incision of the os, the tumour was broken up by scissors ; in all of which recovery, in one case disappearance of the tumour, followed.

But a method which is likely to supersede in great measure these more bloody operations, is simple incision of the os, subsequently carried right through a portion of the tumour.

A published case of Mr. Brown, given in the *Obstetrical Transactions*, vol. iii, page 76, is peculiarly interesting, as the cure was open to ocular inspection, a piece of good fortune not always met with.

This was the case of a single woman, in whom, some seven years previously, he had removed from the os uteri a fibrous growth of about the size of a walnut; and in whom, at the time of the second operation, he had distinctly made out three fibrous tumours just within the os and projecting into the vagina. The os and cervix were freely cut open; and then each of these tumours was deeply cut into; the cut surfaces being dressed with oiled lint, and the vagina plugged. All these dressings were removed in forty-eight hours, and the vagina daily injected. A month afterwards, two out of the three growths had entirely disappeared, and the third was reduced to half its size.

In two other unpublished cases furnished to me by

Mr. Brown, the same result was as conclusively observed. I do not dwell on these, because they are as yet unpublished. Altogether, he has mentioned to me ten cases in which this simple plan of incision of the external os was practised with the best results. As these are, however, only a few among several which will shortly be made public, I only ask you to wait and judge for yourselves.

Here we have, then, a practical lesson taught us. The mere incision will suffice to cause the absorption of the tumour. It is a lesson thus taught, from which Mr. Brown appears himself to have profited, as I now learn that in most cases he no longer gouges, but makes free incisions. The plan is safer. Sloughing in the tumour is thus set up, and this is disintegrated, and diminishes in size, and finally disappears.

The treatment which I have pursued in the Samaritan Free Hospital, where the tumour could be reached from the external parts twofold, has been the following: Sponge-tents from time to time; scraping the mucous membrane; and injecting iodine solution or the tincture of sesquichloride of iron. It is not in every case thought necessary to cut open the os.

In April 1861, I employed this method on a woman, aged 43, who suffered from menorrhagia induced by a large fibroid. This filled the pelvis, and was situated in the posterior wall. The os could be felt high up behind the pubes. The sound penetrated about three inches. The os was dilated. An attack of peritonitis supervened; from which, however, she recovered well. She left the hospital relieved, feeling much better, and conscious that the tumour had diminished in size.

The supervention of peritonitis, after even so simple an operation as opening the cervix, should here be borne in mind in estimating the mortality. Mr. Brown has lost three out of the ten mentioned. I have known of two cases of death from the same cause, and several in which peritoneal symptoms supervened, but were happily successfully combated. Patients seem also liable to peritonitis for some time afterwards. In a case of flooding from a fibroid, a free incision through the os and tumour was followed by the most satisfactory results, both in stopping the hæmorrhage and reducing the size of the tumour, and the patient returned apparently cured to her own home; but in a few days subsequently peritonitis set in. The *post mortem* examination revealed cellular abscess, which had burst into the peritoneum.

We must, therefore, be prepared, even in so simple an operation as the mere incision within the tumour, for accidents. Upon the whole, however, if we bear in mind that the tumour, if once wounded, will not heal, and must undergo partial sloughing or absorption, it is clear that an incision, if performed within prudent limits, is equally as efficacious as the gouging or breaking down of the tumour. These limitations must, however, be attended to. A series of small and successive wounds will produce less constitutional disturbance than one large one. Between the operations, the patient has time to rally and gain strength. The operations may not be so grand and striking; but they are safer for our patients, and this, after all, is the great end of every surgical interference.

Another point, however, has to be touched upon. In my second lecture, I spoke of the difficulty of making a correct diagnosis of the exact position of fibroid tumours, if high up above the true pelvis. It is true, that I then pointed out to you how, by the pelvimeter, you might often make out the diagnosis more correctly. Still, if the cavity of the uterus be short, if the bladder do not extend high up, if the rectal examination be not satisfactory—then the diagnosis must be obscure; and you may, by incising the os, get into the peritoneum, as occurred in one case I then mentioned. There is another disadvantage, also, which will at once strike you from what has been before said; that, in attempting enucleation in a case where the fibrous tumour is above the true pelvis, and not easily reached from below, the traction exercised to bring it down must of necessity be more forcible, and the risk of the operation proving fatal by peritonitis following the traction be greater. Any attempt, therefore, at enucleation in such cases must be very doubtfully determined upon, and even mere incisions very carefully made, lest the peritoneum—of the posterior or anterior *cul-de-sac* especially—be wounded.

2. *Treatment by Gastrotomy.* I have now to speak of another mode of cure; viz., *gastrotomy*. At the outset, I may say that, in the consideration of the cases

in which this operation has been had recourse to, we labour under three disadvantages. 1. Several cases, I know, have been unpublished; and, therefore, the instances quoted fall short of the actual number of examples that have occurred. 2. The records of these cases are by no means full. The details are often so meagre as to leave little room for philosophical deductions. 3. It is possible, on the other hand, that I am exaggerating the number of examples, and that the same cases are repeated. This was undoubtedly so with one of Dr. Clay's cases; which that gentleman, however, kindly explained to me. In Atlee's cases, again, it is just possible that this source of error exists. In such instances, however, the mistake is due to the imperfect records and disagreements between them, more especially in regard to dates of recovery, of death, age, married or single state, size, weight of the tumour; in which particulars the records, otherwise resembling each other, disagree.

Altogether, gastrotomy for fibrous tumour has been performed forty-eight times. In fifteen cases, however, the tumour, either in whole or in part, was not removed. In the remaining thirty-three, the entire or part of the tumour was removed. This *resumê* admits at once of division into two classes.

1. The cases of uterine tumour in which gastrotomy was performed, and extirpation not completed, were fifteen. These include four of Dr. W. L. Atlee, one of Dr. Cutler, one of Mr. Lane, one of Mr. Lizars, one of Dr. R. D. Massey, one of Dr. N.

Smith, one unknown, one of Mr. Walne, one of Dr. Deane, and three of Mr. I. B. Brown. (See Table II.)

In five of these, the exact locality of the tumour is not given: two were fibrocystic; one extrauterine; one a double example—*i. e.*, intrauterine and extrauterine; six parietal, one of these last being combined with pregnancy.

Of these fifteen cases, eight recovered from the operation. But, of these, three subsequently died; one six months afterwards, from erysipelas; another seven months afterwards, of apoplexy. The third, one of the fibro-cystic disease cases, died four years afterwards.

The remaining seven died. In two of these, the tumour was combined with pregnancy. One died five weeks after the operation, and there was some reason to suspect suicide. The second seems to have died of peritonitis. One died of slight peritonitis, in twelve days; another, of exhaustion, in fourteen hours after the operation. Another died of inflammation of the tumour; one of abscess. The cause of death in the last is not stated.

The first two fatal cases here mentioned should clearly be excluded. We cannot doubt that the diagnosis was most difficult, if not impossible, during life. This we are assured of from the character of those in whose practice the cases occurred. Still, if the principle so forcibly insisted upon by Dr. Greenhalgh had been adopted, and in which I fully concur—never to operate unless you can introduce the sound *in utero*—which was in one of these examples, at least, tried several times, and without success, these cases would not have been operated upon. Thus we have thirteen cases and five deaths—a mortality which seems to justify the operation, if an operation be imperatively called for. One of the fibro-cystic cases, indeed, recovered and lived four years afterwards. It is not to be presumed, therefore, that she was otherwise than benefited from the operation.

Secondly, we have to consider the cases of fibrous tumour of the uterus for which gastrotomy was performed; and the whole uterus, tumour, or part of either, were removed. (See Table III.)

The cases to which I shall refer are thirty-three in number. The particulars of another, which I have heard of, I have not been able to obtain.

These cases consist of four of Dr. W. L. Atlee, one of Dr. T. L. Atlee, one of Mr. Heath of Manchester, one of Dr. Sloane, two of Mr. I. Baker Brown, one of Dr. Boyd, three of Dr. Clay, one of Dr. Granville, one of Dr. Parkman, one of Mr. Lane of London, two of Dr. Peaslee, three of Dr. Kimball, one of Dr. Burnham, one of Dr. Nelson, one of Dr. A. F. Sawyer, three of Mr. Spencer Wells, one of Mr. Fletcher, one of Dr. Hakes, one of Mr. Cadge, and three of Dr. Kœberle. For notices and references to several of these, I am indebted to Mr. Clay's translation of Kiwisch on the *Ovaries*. To the same gentleman I am indebted for correcting some errors in some of his cases published by others. To Mr. I. B. Brown, to Mr. Wells, and to Mr. Cadge, I am indebted for the report of three other cases; to the distinguished physician of Strasburg, Dr. Kœberle, for notices of his three cases; as well as for the reference to Dr. Kimball's cases, which he kindly gave me.

A *resumé* of these cases establishes the following conclusions.

Where these particulars are noted, nine were married, and only four single.

Where the age is given, in two it was between 20 and 25; in one, between 25 and 30; in four, between 30 and 35; in two, between 35 and 40; in seven, between 40 and 45; in three, between 45 and 50; in two, between 50 and 55. One recovered between 20 and 25; one between 35 and 40; and two between 40 and 45. All the rest whose ages are given died.

The gross mortality of the entire thirty-three cases was twenty-three; the recoveries, ten.

As to the causes of death, nine died of hæmorrhage. In four of these cases, it was found that the hæmorrhage was due to the ligature having slipped *after* the operation, or being insufficiently tightened. In two other of the cases of death, the cause was probably excessive hæmorrhage *during* the operation. In most of these cases, it is also remarkable that it is not stated whether the pedicle left was transfixed, or the clamp used—a fact which may in some measure explain the loss of blood, the ligatures being insecure. Four patients are said to have died of peritonitis; two of gangrene of the intestines; one of pleuritis; one of poisoning; one of pus in the veins; one of phlegmonous erysipelas of leg; one of inflammation brought on by a fall; and the rest of shock, between four to thirty-six hours after the operation.

The study of these cases, however, admits of a more practical application when divided into three classes: 1. Extrauterine cases; 2. Parietal or intrauterine; 3. Cases where the uterus and ovaries were removed.

1. There were fifteen cases of extrauterine tumours extirpated. Five of these cases recovered, although one died three years afterwards of some obscure abdominal disease; three died of hæmorrhage; in two, owing to the slipping of the ligature—an accident which in our days could scarcely occur, with our improved means of securing cut surfaces; one died of shock; the remainder, of inflammatory complications. This gives an average mortality of 66 per cent.; or, if we exclude the two hæmorrhage cases, where death arose because the ligatures employed were insufficient, of 61.4 per cent. But, in three more of the fatal cases, enucleation was performed—a proceeding which I believe is unwise, when made by gastrotomy from the outer surface. It is precisely on the surface that we have the large vessels; and although, after a time, the uterus may contract till the enucleation is completed, they continue to bleed very freely. Again, as in contraction after pregnancy, the uterus partially relaxes again; secondary hæmorrhage may occur, and death follow. And here I may refer, as an argument against enucleation, to the effect produced by wounding a fibrous tumour through its uterine envelope by gastrotomy. Looking to some of the cases

before given, it will be seen that, in two of these, the uterus was punctured externally in making the incision. In three others, it was purposely punctured by the trocar. In all but one—Mr. Hakes's fibrocystic case—the hæmorrhage was excessive from such openings. In the case I saw, the blood gushed out as from a pump. In two other cases, in one of which I saw a puncture made through the vaginal wall by a small exploratory needle, and in another which I myself punctured by a very small trocar, the hæmorrhage was also excessive, and could only be controlled by the actual cautery. This point is of practical importance in making exploratory punctures through the abdomen, and pointing out the great risk of enucleation or puncturing a solid tumour through the external coating of the uterus.

2. In the next class of cases, where the tumours were *parietal*, or partially *intrauterine*, involving the uterus itself, in some cases fibrocystic, the result is much more deplorable; and, out of nine extirpations of this kind, there were eight deaths, and only one recovery. Of the deaths, five were due to hæmorrhage. Here, again, however, the cut surfaces were not well secured. In one, there was oozing from the cut surface; in two others, the ligature slipped. In four examples, again, only *portions* of the diseased mass were removed. This, for the reasons before said, would be a dangerous course. The low vitality of the cut tumour would necessarily lead to its gangrene, and, as a consequence, to the death of the patient. In one of these, we had death from pus in

the veins at the *post mortem* examination; in another, erysipelatous inflammation of the leg; in the two others, death from hæmorrhage. In these last, enucleation was again practised after gastrotomy. Hence the death from hæmorrhage and shock. And it is remarkable, that the only case in this category that recovered was one in which it was stated that all the uterus except the cervix was removed. All in and about the diseased organ was removed.

3. The last category of cases, however, appears to be most interesting. In all, they amount to nine, with four recoveries. One death here appears to have resulted from hæmorrhage, the ligature not having been sufficiently secured; and one death was purely accidental.

This last, one of Dr. Clay's, had all but recovered; the wound had healed; the ligatures had come away; and she was progressing rapidly towards convalescence, when she fell heavily to the ground when the bed was making. The shock to her system appears to have determined inflammatory complications, of which she died.

These last two cases should, therefore, fairly be excluded. This would give seven cases, and four recoveries—more than half. In all these, the ovaries (with the exception of one case, one of Mr. Wells, in which *one* ovary only was removed) were extirpated, as well as the entire uterus. And, in order that this should be done, the uterus must have been high up and well without the true pelvis.

It is obvious, however, on more closely reviewing these cases in which gastrotomy has been performed successfully, that it is precisely in those cases where the tumour was high up in the false pelvis, that the success has been greatest. Secondly, in those where the ovaries were removed, it is this same contingency which contributed to their ready extirpation also; and, thirdly, it was also in those cases where the whole diseased mass was capable of removal.

The first contingency is the reverse of what we observed in cases of enucleation *per vaginam*. If such tumours are to be removed by gastrotomy at all, it is a favourable position. Secondly, a very little reflection will shew that it would be impossible, except in a case where the uterus and ovaries were high up in the false pelvis, to remove them *en masse*. For, if we look for a moment to the large vessels in immediate contiguity, the broad ligaments which have to be cut through, the position of the bladder, ureters, spermatic artery, the objections to the operation appear very great, almost insurmountable, if there be any extensive adhesions; and yet the only four cases on record, if we exclude extrauterine tumours, in which recovery has followed, have been the cases in which Drs. Clay, Burnham, Kœberle, and Boyd removed both uterus and ovaries. And this could not have been effected, unless, as before urged, the uterus and ovaries had been well drawn up outside of the true pelvis, where they could be easily got at and removed.

At *post mortem* examinations, with the abdominal walls opened low down, even to the front of the bladder, and when all the intestines are moved out of the way, even when the rectum is included, anybody who has tried it must have experienced how great is the difficulty to separate away the contents of the true pelvis. But, admitting it were possible, how could the arteries cut across be secured? and would it be possible to remove such a mass without wounding the large veins in this cavity?

What is then the conclusion to which the present analysis brings us? Gastrotomy for fibroid tumours should not be performed, except—1, in cases of extrauterine tumours; 2, in those cases where the tumour is high up in the false pelvis; and 3, not only must *the whole diseased uterine mass be removed, but also the ovaries.*

A last question remains for inquiry. What circumstances should lead us to interfere in cases of fibroid tumours at all? These conditions, I believe, may be included under four heads—

1. Where, by their rapid growth, they are threatening to interfere with vital functions.

2. Where, by their size, they are threatening to arrest micturition and defæcation especially.

3. Where, by their size and pressure upwards, they are interfering greatly with respiration and the cardiac circulation.

4. Where hæmorrhage is excessive, and threatening to exhaust the patient by its quantity and frequent recurrence.

1. Some tumours will remain dormant for years. I have known of one which made no progress for nineteen years; but this was in an old woman. In ad-

vanced age, these tumours are not likely to make great progress. The period of uterine activity is always, as we have before seen, more or less concerned in their development. If all sense of comfort is lost, if this annoyance be on the increase, and if it appear probable that the devolopment will go on, then there may be a reason for interference. The patient is then in better health than she will be; and, surgically speaking, is in a better condition to be operated upon than she can be at a future time.

2. If the functions of defæcation and micturition are interfered with, the suspension of both these functions, especially micturition, must ere long lead to fatal disease. We may, by injections regularly continued, assist defæcation. We cannot, if the pressure be exerted on the ureters, enable the patient to make water. The ureters will dilate, and the kidneys ere long will be irremediably injured. The tape-like condition of the motions will indicate that the rectum is pressed upon. The constant desire to micturate, great backache high up, the alkaline and thickened condition of the urine, and generally its albuminous character and high specific gravity, will indicate that the bladder or ureters are pressed upon; add to which, the patient herself has a very urinous odour about her. There may be, in addition, some symptoms of poisoning by urea, a tendency to narcotism, and slight convulsive affections. The constant desire to micturate, and the large quantity of urine which can often be drawn off by the catheter, give a greater colouring to such a suspicion; and this is

certainly a case which warrants interference. It is also more likely to succeed, as in these cases the tumour is low down, and more get-at-able *per vaginam.*

In these two varieties, it is clear the operation should be by that passage.

In lieu of an operation, it has been suggested that it is advisable to push up the tumour by main yet judiciously applied force into the false pelvis, and so relieve the pressure on the vital organs; and Dr. Oldham has stated to me that he has effected this on several occasions with the best result. This is high and unexceptional authority. I long, however, to see these cases published; as, in the absence of this information, we must all necessarily be incompetent to state to which *modus operandi* the preference should be given. In several cases where I have attempted to do so, I have failed, and could not have succeeded, except by the use of force which I should have feared to employ. In other cases, I have heard that peritonitis and death have resulted. Where there are adhesions, I should suppose the measure hazardous. If these do not exist, and there be impaction only, then the measure certainly ought to be tried first. If, however, the tumour be a cause of menorrhagia, this plan is not likely to supersede other local measures necessary to arrest those losses; and we have put our patient in that position, when to operate on the tumour becomes less easy. These, I think, are considerations to be borne in mind before we push up a tumour. On the other hand, there is this advantage if we succeed in pushing the tumour high up above the pelvis; if it then continues to enlarge, and if it thereby interferes with respiration and circulation, it is high up, and in the condition most favourable for extirpation. It is only where the compression on the bladder and rectum calls for immediate action, that we should act thus; and then, I fear, adhesions would often already have been extensively formed.

3. Where the tumour, by pressure upwards, interferes with the free action of respiration and the heart, in these instances—at least, in all those I have seen—the tumour is situated above the true pelvis. In most cases, it is fibrocystic; and in several cannot be felt even through the vagina. Here we have the same indications which call for operation in ovarian dropsy, and they must be fulfilled in the same manner. Interference with these tumours *per vaginam* is more doubtful, because it is so difficult to reach them from below. Except with the double sound pelvimeter, diagnosis as to position in the wall is impossible. These are cases, therefore, in which it may be allowable to think of gastrotomy. Here also we may expect to find the uterus and ovaries pulled up from the lower pelvis into the upper, and therefore more easily got away, because there would be less risk of wounding large vessels.

4. Lastly, where hæmorrhage is excessive, and threatening to exhaust the patient by its quantity and frequent recurrence, it may be justifiable to interfere. But even here the mode of interference

must be different, according to the nature of the patient's case.

If the exhaustion be very great, if the anæmia present be very marked, then the use of the knife is contraindicated. We must recollect an exsanguine state is precisely that which renders a patient not only more liable to absorption of putrid matters, if once formed, but to their ready formation. In a patient of weak vitality, a growth of intrinsic deficient vitality will be more likely to slough. The power of a patient, under such circumstances, to resist or recover from an attack of pyæmia, is almost *nil.* Astringent remedies and tonics must first be given to prepare the patient, before more active interference is carried out; and it is precisely in these cases that Dr. Savage's method of previous dilatation by a sponge-tent, and subsequent injection of the uterus, is called for. This, as in a case I previously recorded, will allow the patient to rally for the time; and it is especially at the recurring menstrual periods that she must be watched and cared for. If, however, the patient be in a comparatively healthy condition, once the bowels having been regulated, incision of the os, or of the tumour, may be practised. This preliminary preparation by a course of depurative remedies is particularly useful in all operations upon fibrous tumours. Peritonitis and cellular abscess often follow interference with them. I do not know that the former, if within certain limits, is not of ultimate advantage. I think I have seen it beneficial in promoting disintegration of the tumour. When it occurs, it is best treated by opium and calomel in small doses, injections of laudanum *per anum*, and turpentine stupes. At least, such has been my experience.

It is needless, in addressing a society of medical men, to insist upon these minor points; still less to dwell upon the necessity of operating only upon those patients who have no other advanced organic diseases which are likely to hasten a fatal termination. Upon one point only I wish to make a reflection; and it is, that I hold it to be morally wrong to operate upon cases of fibrous tumours against our better judgment, merely because a patient or her friends are clamorous for the operation. I make this remark, because I have heard it brought forward as an excuse for reckless surgery. We must know better the position of our patient than she does or can know.

In conclusion, I cannot but again here insist upon Dr. Greenhalgh's rule, already several times alluded to—never to operate, in a case of suspected uterine fibroid, until you have examined satisfactorily the cavity of the uterus. *The sound must have been introduced.* If the instrument cannot be passed in at first, and the os uteri can be reached, proceed as in a case of occluded os. Small punctures, gradually dilated by sponge-tents and extended in the direction of the os, will probably succeed. It is also well, if there is the slightest doubt of coexisting pregnancy, to give ergot before you operate. It is better to cause a miscarriage than risk the death of a patient. If the os uteri be so high up that it cannot be reached, delay as long as practicable. When obliged, a small exploratory puncture, either *per vaginam* or through the abdominal parietes, is a useful preliminary. It may clear up the difficulties of the case.

With these remarks, gentlemen, I bring these lectures to a conclusion. I trust they have not wearied you; and that, upon the whole, the time thus occupied, has not been unprofitably spent. To me, the preparation for them has been somewhat severe, yet withal very interesting. In the indulgence and kindness with which you have heard me, I am more than repaid for my labour.

TABLE I.—*Cases of Fi*

| No. | Operator and Locality. | M. or S. | Age | Previous |
|---|---|---|---|---|
| 1 | I. B. Brown. *Braithwaite,* 43, 318. London Home, 1859. | S. | 35 | Sickness floodings years' du |
| 2 | Ditto. *Ibid.* p. 219. Ditto, 1859. | M. | 30 | Hæmo quite an nic and treatmen 27, losi freely. |
| 3 | Ditto. *Ibid.* p. 320. Nov. 1859. | S. | 46 | Hymen rate, inta |
| 4 | Dr. T. Robertson. *Path. Trans.,* xi. | .. | 50 | Tumour five years to protr labia, gi to much flooding. |
| 5 | Dr. J. Hall Davis. *Obst. Trans.* ii, 17. | W. | 51 | Once Uterine rhage. of urine. obliterat sions to |

| No. | Operator and Reference. | Age | Pre |
|---|---|---|---|
| 13 | Mr. I. B. Brown. London Home. Communicated | 30 | Married fou 1862. No c six years ago tumour. Th subsiding wi copious. Hea Two quarts o menia regul tilocular ova what appeare hernia of om |
| 14 | Mr. I. B. Brown. Ditto. | 41 | Married 7 yrs mitted Feb. 18 mths. sinc persisted spit perceived a This increas Latterly men since Nov. las tumour large Irregular in o superiorly. elasticity. tumour and that sound co eral health ba ation. Diag Fibroid comp |
| 15 | Dr. Dean. *Brit. Med. and Surg. Journ.,* 39, 221., Oct. 1848. *Amer. Med. and Surg. Journ.,* vol. 43, 258. | .. | A globular sy pubis in front in recumbent given to it. I perhaps 8 or 9 to spring from uterine. Fun deviation. No *Uterine.* Par |

## TABLE II.—*Continued.*

| ous History, etc. | Steps of Operation. | Progress. | Final Result |
|---|---|---|---|
| years. Admitted Nov. 26, dren. Always healthy till hen she first perceived the increased at each epoch, its cessation. Catamenia failing in 1860, was tapped. dark fluid drawn off. Cata- *Examination.* Large mul- n tumour diagnosed; also to be undoubted umbilical tum. *Fibrocystic.* | Operated Dec. 11, 1862. After primary incision, large quantity of ascitic fluid escaped. A cyst then came into view, which looked like intestine, and on exam. tumour was fnd. to be composed of several hard masses (like scirrhus) and very adherent in every direction. It was attached to the whole omentum, liver, and uterus, being also quite immovable. A quart of pale yellow fluid was drawn off from 2 of the cysts, and the wound closed with silver sutures. | Went on well till 17th, when coughing violently, wound was forced open, serous fluid coming out. Contd. for a few days. Dec. 26, small abscess opened at upper part of wound. Stimulants, wine, and acid given. Tumour refilling. Sickness. Wnd. gaping. | Died, Januar 6, 1863. |
| no child.; 2 miscarr. Ad- 1863. Irregul. since marr. had severe pain, l. hip, wh. of tr<sub></sub>eatm. Six mths. after . tumour in r. ovn. region. radually & became central. r. more irregul., *suppressed* Whole abdomen filled w. han full twin pregnancy. line, w. 2 small outgrowths parts indistinct fluct. or vis was so filled up with o drawn up behind pubis not be introduced. Gen- Patient urgent for oper- is obscure. *Parietal.* ted with pregnancy. | Feb. 26. Exploratory incision, 3 inches long. Tumour found very vascular, more like muscle than cyst of ovary. Trochar plunged in to make sure, giving exit only to a little blood. Closed by silver wire. Abdominal parietes also. | Some tympanitis, yet prog. well till Mar. 3. when she had a rigor; fever persisted till 12th. 13th, inflammtn. of tissues around right eye. Insensible; tenderness of abdomen. Fœtus came away. | Died exhauste 17th. *P.M.* 2 p of pus in perit neum. Tumo adherent to p vic fascia, and about 2 squa inches of liv Tumour size a peck bask with smooth regular surfac with two sm lumps of size a filbert attached. Tumour all fibroid, involving whole left side uterus. Fœtus must have lain to left side, also occupying positio parallel to tumour, half being impregnated uterus, and half tumou Parietes containing fœtus in no way contracted. Several purule points in kidneys and liver. |
| trical tumour, resting on sacrum behind. Raised ition and free impulse ect immoveable. Length ong by 5 or 6 brd. Seems ht ovary, still might be ns of uterus normal, no , but increasing rapidly. | Incision made on the left side of umbilicus, carried down to pubes. Round polished solid tum. expos. covered with very large vessels. No adhesions. Intestines forced out. Found to be a solid fibrous tumour of uterus involving left half. Operation stopped after consultation, and parts returned. No bleeding of any note occurred. | Inflammation, folld. with spasmodic twitchings which continued till 8th day; removed by depletion. | Recovered in fortnight. |

TABLE III.—*Cases of Fibr*

| No. | Operator and Reference. | Age | Previous and |
|---|---|---|---|
| 1 | Dr. W. L. Atlee, of Philadelphia. *Am. Journ. of Med. Sci.* 1845. | 24 | Tumour occup<br>iliac region; u<br>moveable super<br>Extended belo<br>pubis. Occupie<br>pressing agst.<br>moved indepe<br>when this was<br>the centre wa<br>thick as finger,<br>position, and<br>ro-postr. direct<br>end was the os.<br>after extractio<br>meters, 1 ft. 7<br>11½ in. *Extra* |
| 2 | Dr. T. L. Atlee. *Ibid.*, vol. 35. 1845. p. 335. *Atlee's Table.* | 42 | Disease of ute<br>*uterine.* |
| 3 | Dr. W. L. Atlee, *Am. Med. Jour.* 1855. | 39 | Married. Men<br>of oper. & cont<br>Found to weig |
| 4 | Ditto. *Ibid.* | 45 | Married. Fou<br>*Extrauterine.* |
| 5 | Ditto. *Ibid.* | 40 | Married. Thr<br>weighing 4 lbs |
| 6 | Mr. Heath, of Manchester. | 46 | Single; never<br>Suffered fr. me |

| No. | Operator and Locality. | Age | Previous |
|---|---|---|---|
| 33 | Kœberle. Communicated | 24 | Tumour we<br>ago, observ<br>First came<br>then of an<br>being very<br>without eff<br>swelling ext<br>Dyspnœa<br>decubitus la<br>so evident,<br>blood only<br>slightly ede<br>*Extrauterin* |

## TABLE III—*continued.*

| nd General History. | Steps of the Operation. | After Progress. | Final Result. |
|---|---|---|---|
| ghing 33 kilog. 5 yrs. d abd. was enlarging. suspicion of pregn'cy, ovarian tumour, fluct. vid. Tapped 7 times . In 1868, belly enorm. to scaphoid cartilage. rgent, face cyanosed, teral. Fluctuation was he was again tapped, xuding. Walls of abd. matous. , *Pedunculated.* | Operated March 4, 1863. Incis. 55 centim. Large fibroid exposed, which at the least succussion shook like jelly, adherent to epiploon by large tortuous vessels. These tied and cut on both sides. Ovaries healthy. Metallic ligature put around pedicle, wh. was about size of a fist when cut. At least 2 litres of blood came away from cut end. Parts now sponged. Large bleeding veins tied. A small superficial part of adherent liver having been removed, exuded bile and blood. This was arrested by the perchloride of iron. Operation lasted 2½ hrs. A small portion of air retained in abdomen. Wound closed. | For two first days did pretty well; 3rd, violent sickness, and death from exhaustion and dyspnœa. | Died March 8. *P.M.* Air absorbed. Wound two-thirds heal'd Some serum inferiorly from œdematous walls Tumour entirely disappeared. No phlebitis or false membrane. Two litres of sero-purulent fluid in right pleura Death thus due to pleurisy. |

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